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A

CONCHOLOGICAL

MANUAL,

BY

G. B. SOWERBY, Jun.

ILLUSTRATED BY UPWARDS OF FIVE HUNDRED FIGURES.

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PREFACE.

It may be necessary in introducing this little volume, to state, that it is strictly conchological, and that it is compiled for the use not only of those who wish to acquire an elementary acquaintance with the subject, but also of authors and others, who, desirous of extending their knowledge and pursuing their researches, require a book of reference, containing a general outline of what has been done by those who have trodden the same path before them. It has been thought advisable, for general convenience, to arrange the principal part of the information in alphabetical order; adding tables of the systems of Lamarck and De Blainville, to facilitate the systematic pursuit of the science.

Persons of the class first alluded to, will find great assistance in the explanation of technical words, their application being further illustrated, in most cases, by a reference to the figures; and, although they might have been multiplied, it is trusted that enough are given for every useful purpose.

The definition of the Classes, Orders, Families, and Genera, in the system of De Blainville, and a tabular view, are presented for the use of those who prefer it, or who wish to compare it with that of Lamarck.

In the explanation of the figures, will be found a systematic arrangement of shells, according to Lamarck, including the names of genera established or proposed since the publication of his system. The descriptions of established

genera, have been rendered as concise and clear as possible. It is hoped that no essential characters are omitted, and that those livings authors, whose proposed generic distinctions have been passed over in a few words, will not have to complain of want of justice in the attempt to interpret their meaning.

In most cases the generic name will be found accompanied by its derivation. This has been done, in the hope of assisting the memory by associating the meaning of a term with some peculiarity in the thing described. At the end of each description of a genus, some general observations occur, pointing out the principal character which distinguishes it from others, to which it is nearly allied; and also stating the geographical or geological distribution and habits of the animal.

The above descriptions and definitions, are illustrated by a series of plates, containing above 500 etchings of nearly as many proposed or established genera, arranged in Lamarckian order, so as show at a glance all the generic forms of each family. And, although, from their number, they could not be very highly finished, it is hoped that they will be found characteristic.

The compiler cannot replace his pen, without acknowledging, with filial gratitude, the kind assistance of one who has sacrificed much of his time in bringing his knowledge and experience to bear upon the correctness and utility of this humble attempt to remove some of the difficulties to which the commencement of this, as well as of every other study, is exposed.

INTRODUCTION.

THE science of Conchology, delightful as it is, affords an instructive amusement for the leisure hours of those, who, retiring from the gaities of fashionable life, find their pleasure in the quiet contemplation of some of the smaller, but not the less wonderful operations of creative wisdom. And although the study of shells would be more complete, and rank higher in the scale of philosophical pursuits, were it accompanied by that of the animals inhabiting them, it still presents a fund of intellectual gratification, to many who cannot follow it beyond the cabinet and boudoir. They may examine, with admiration and mental improvement, the beautiful colouring and exquisite architecture of these wonders of the deep, and looking to the great Author of all, exclaim with an inspired naturalist, "Lo! these are *parts* of his ways."

It is but little that can be known of the science, without forming a collection of greater or less extent; for, as it would be uninstructive merely to delight the senses by admiring the bright colours and elegant forms of a few shells, without obtaining any information respecting them, so it would be insipid to learn technicalities, without being acquainted, by observation, with the objects which they describe. We will, therefore, endeavour to direct the learner to the easiest method of studying the subject, proceeding upon the supposition, that he possesses asmall parcel of shells without any previous knowledge of the science.

It may be desirable, in the first instance, to peruse the explanations of technical terms used in descriptions, and then to pass through the plates, comparing the figures with the list, and referring from the list to the definition of the names of the principal divisions found in the body of the work. A general notion having thus been obtained of the arrangement of the principal forms, the learner may proceed to take a shell from the drawer; if it be a bivalve* shell, he will know that it is included in the class Conchifera; if a multivalve, he will find its place in the class Cirripedes; all his shells may thus be arranged in classes. Proceeding with the smaller divisions, the shells composing a class may be divided into orders by a similar process, always taking care to turn to the definitions, and to examine the shells. When, by further carrying on this operation, the shells are arranged in families, one at a time may then be compared with the figures of the genera contained in the family to which it belongs, and a little careful examination will probably connect it with some generic form. The definition of the word must then be turned to, for purpose of ascertaining whether the shell agrees with the description of the genus which it is thought to resemble. If, for instance, the shell having a row of little notched teeth on the hinge, has been placed in the family of Arcacées, and on further comparison with the figures, it is observed that the hinge-line is straight, and that there is a flat area behind it, the learner will imagine it to resemble the genus Arca, and will turn to the definition of the word, to find whether the description agrees in other respects. Thus, comparing shells with figures, and the explanation of plates with the definition of

* The word Bivalve, has been inadvertently omitted in the text, but will be found described in the list of Errata.

words, the student may soon complete the arrangement of the few shells he is supposed to possess. It may then be desirable to pass through the system, with a view to ascertain whether the collection contains an example of each of the principal divisions; if not, they may be procured at a small expense: and then, by all means, let a collection of genera be formed as complete as possible. It may be as well here, to advise those who are forming a collection, to be very particular in every practicable instance, to have the shells properly named at the time of purchasing; as it will save much trouble, and materially assist in the attainment of the desired object.

Let none be discouraged by the number of generic distinctions created in modern times; for, if well defined, they will be found to facilitate rather than to encumber the study. The knowledge of species must be the foundation of every system, and the greater the number of species, the greater is the necessity for systematic distinctions. If, for instance, all the species now known, were to have been included in the fifty Genera of Linnæus, a single genus would have contained many hundreds of species, and it would be more difficult to remember them, in that case, than if they were divided into ten times the number of genera. Every well marked division, however arbitrary its limits, tends to simplify the subject, and to facilitate the researches of the student.

ERRATA.

PAGE 2. Achatinella, for *Sow.* read *Sw. Swainson.*

3. Alatæ, omitted a comma between Apporhais and Petiver.

13. Omitted, BIVALVE. A shell composed of two equal or nearly equal parts, turning upon each other by means of a hinge. The Bivalves compose the class Conchifera, Lam.

31. For *Crenatuta*, read *Crenatula;* for *Mityloides*, read *Mytiloides.*

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AB'SIA. Leach. LITHOTRYA, Sow. *Fam.* Pedunculated Cirripedes, Lam.

ACA'MAS. Mont. BELEMNITES *multiforatus*, Bl. A species described as being terminated at the apex by a stellated perforation. This is supposed to have been described from a broken specimen, as no fossil is now known agreeing with the description.

ACAR'DO. Commerçon. Described from a pair of bony plates, placed between the vertebræ of the whale, and mistaken for a bivalve shell, destitute of a hinge.

ACAS'TA. Leach. *Order*, Sessile cirripedes, Lam. BALANUS *Montagui*, &c. Sow. Separated from Balanus, on account of the cup-shaped process at the base, but re-united by Sowerby, who shews that this is a mere accidental circumstance, resulting from the situations in which the shells acquire their growth. The Acastæ are found imbedded in sponges. *Ex.* Acasta Montagui, fig. 26.

ACA'VUS. Montf. *Fam.* Limacinea, Bl. Colimacea, Lam. A division of the genus HELIX which may be considered synonymous with De Ferussac's sub-genus *Helicogena*. De Montfort has figured H. Hæmastoma. See fig. 267.

ACCESS'ARY VALVES are the smaller or less important testaceous plates, as distinguished from the principal or true valves. Ex. The small plates on the hinge of Pholas, fig. 55. *a*.

ACEPHALOPH'ORA. Bl. (*a*, without; Κεφαλε, *cephale*, head.) The third class of the type Malacozoaria, Bl. including all bivalves, the animals of which have no distinct head. The Acephalophora are divided into the orders Palliobranchiata, Rudistes, Lammellibranchiata and Heterobranchiata, the last of which contains no testaceous mollusca.

ACHATI'NA. Lam. (From *Achates*, an agate.) *Fam.* "Colimacea," Lam. Limacinea, Bl. POLYPHEMUS, Montf. *Descr.* Shell, oval or oblong, sub-turrited, light, thin; aperture oval, pointed at the posterior extremity; outer lip sharp; columella smooth, tortuous, truncated so as to form a notch at its union with the outer lip. *Obs.* It is from the latter circumstance that we are enabled to distinguish *Achatinæ* from *Bulini*, which, moreover, have a re-

flected lip. The *Polyphemi* of Montf. have an undulation in the outer lip. A. Virginea, fig. 286. Polyphemus Glans, fig. 288.

ACHATINEL'LA. Sow. Is a small group of shells, differing from Achatina in having the inner edge of the outer lip thickened, and a slight groove near the suture of the spire. Fig. 287.

ACHE'LOIS. Montf. Conilites Achelois. Knorr. Sup. t. iv. fig. 1.

ACIO'NA. Leach. Scalaria, Auct.

AC'TCÆON. Montf. Tornatella, Lam.

AC'TINOCAMAX. Stokes. A genus of Belemnitiform fossils.

ACU'MINATED. Terminating in a point, as the apex of Melania Subulata, fig. 313.

ADDUC'TOR MUSCLE. That which draws the two valves of a shell together, and leaves a mark in the inner surface of each, called the Muscular impression.

ADELOSI'NA. D'Orb. A genus of microscopic Foraminifera.

ADESMA'CEA. Bl. (*a*, without; Δεσμα, *desma*, a ligament.) The tenth family of the order *Lamellibranchiata*, Bl. composed of Mollusca, which either bore tubular dwellings in rocks, wood, &c., or live in testaceous tubes; their shells being consequently destitute of the hinge ligament. The action of opening and shutting the valves being limited by the narrow space in which they are confined, or else the valves themselves, being soldered into the tube, renders it unnecessary for them to have a ligament, to keep them in their places. The genera Pholas, Teredina, Teredo, Fistulana and Septaria, belong to this family.

AD'NA. Leach. One of the genera separated by Leach from *Pyrgoma*, and characterized as consisting of a single upper valve, supported on a funnel shaped base, which is not buried in the coral to which it is attached, like Pyrgoma, but is seen externally. The operculum consists of four valves. Adna, fig. 32.

AGAN'IDES. Montf. Orbulites, Lam.

AGATHIR'SES. Montf. Siliquaria Muricata, Auct.

AK'ERA. A genus of extremely light, horny shells resembling Bulla, from which it differs, in the outer lip being separated from the body whorl, and consequently elastic. *Ex.* Bulla Fragilis, fig. 247.

AK'ERA. Bl. The fourth family of the order Monopleurobranchiata. Bl. containing the genera Bulla, Bullæa and Bellerophon.

A'LÆA. Jeffreys. A genus of minute land shells, resembling *Vertigo*, but separated because they are dextral, while Vertigo is sinistral. *Ex.* Fig. 292. A. Marginata; Pupa Marginata, Drap. found in marshy ground, roots of trees, moss, &c.

ALAS'MODON. Say. Division of Unio, consisting of such species as have cardinal, but no lateral, teeth. *Ex.* A. Complanatus, fig. 141.

ALA'TÆ. Lam. (From *Ala*, a wing.) A family belonging to the second section of the order Trachelipoda, containing the

genera Rostellaria, Pterocera and Strombus, to which would be added, Hippochrenes, Montf. and Apporrhais, Petiver. The shells of this family are distinguished by the spreading of the outer lip.

ALA'TED. (From *Ala*, a wing.) Winged, a term applied to shells when any portion of them is spread out in any direction as in fig. 403. Hippochrenes, Montf. and Unio Alatus, fig. 147.

ALEC'TRION. Montf. Buccinum *Papillosum*. Auct. fig. 422.

ALVEOLI'NA D'Orb. A genus of microscopic Foraminifera.

AMAL'THUS. Montf. A. Margaritaceus, Montf. Is a species of Ammonite, described as very flat, keeled, with an angular aperture. *Fam.* Ammonacèes, Lam.

AMBI'GUÆ. Lam. The fourth section of the order Conchifera Dimyaria. Containing the family of Camacea, fig. 153 to 155.

AMIMO'NUS. Montf. Conilites Ungulatus, Knorr. A species slightly curved. *Fam.* Orthocerata, Lam.

AMMONA'CEA. Bl. The fourth family of the order Polythalamia, Bl. or chambered shells, including the genera Discorbites, Scaphites, Ammonites and Simplegas, distinguished from his *Nautilacea*, by the whorls being visible.

AMMONACEA. Lam. The seventh family of Polythalamous Cephalopoda, Lam. containing the genera Ammonites, Orbulites, Ammonoceras, Turrilites, and Baculites, to which may be added Amalthus, Simplegas, Ellipsolites, Nautellipsites, Hamites, Icthyosarcolites, and other genera mentioned in the list of fig. 477 to 484.

AMMONI'TES. Auct. (from Jupiter Ammon) *Fam.* Ammonacées, Lam. & Bl. *Descr.* Symmetrical, convolute, discoidal, orbicular: chambers numerous, divided by lobate or sinuous septa, perforated by a siphon: aperture generally more or less modified by the last whorl. The fossils of the secondary strata which compose this genus are numerous and well known, they are vulgarly called snake-stones, and some of them are very beautiful, particularly when the internal structure is exhibited by a section. There is some difficulty in distinguishing them from the fossil Nautili, for although the *whorls* being *visible*, and the *septa sinuous* may be taken as the characteristics of Ammonites, yet there are several species which partake of the characters of both. The Orbulites of Lamarck, for instance, have sinous septa like Ammonites, but the last whorl covers the preceding ones as in Nautilus. Simplegas of Montf. and Bl. has whorls visible externally and simple septa. Ammonites, fig. 478.

AMMONOCE'RAS.
AMMONOCE'RATITES. } Lam. (From *Ammon*, and Κερας, *ceras*, horn.) The shells described under this Lamarckian genus present an anomaly, which Sowerby considers merely accidental; they resemble the Ammonites in internal structure, but instead of being spirally convolute they are merely curved like a horn. *Ex.* Fig. 477, copied from Blainville.

AMPHIBULI'MA. Lam. Succinea Patula, Auct. fig. 266.

AMPHIDES'MA. Lam. (from Αμφι, *amphi*, *both*, Δεσμος, *desmos*, *ligament.*) *Fam.* Mactracea, Lam. *Descr.* Equivalve, oval or rounded, sub-equilaternal, sometimes rather gaping at the sides, with a slight posterior fold; hinge with one or two cardinal teeth in each valve, and two elongated lateral teeth, distinct in one valve, nearly obselete in the other; ligament short, separated from the cartilage, which is elongated and couched obliquely in an excavation of the hinge. *Obs.* In most bivalve shells the cartilage and ligament are united in one mass, or placed close to each other; the contrary in this case gives rise to the name, which signifies, *double ligament.* This circumstance distinguishes the genus Amphidesma from Tellina, which in other respects it greatly resembles. From Lutraria it may be known by its distinct lateral teeth, and also by its valves being nearly close all round, while the Lutrariæ gape anteriorly. The species do not appear to be numerous, no fossil species are known. A. *Reticulatum*, fig. 85.

AMPHISTEGI'NA. D'Orb. A genus of microscopic Foraminifera.

AMPLEX'US. Sow. A. *Corralloides*, fig. 463. A singularly formed fossil, described as nearly cylindrical, divided into chambers by numerous transverse septa, which embrace each other with reflected margins. It occurs in the Dublin limestone, and resembles a coral or madrepore.

AMPULLARI'A. Lam. (*Ampulla*, a rounded vessel.) *Fam.* "Peristomiens," Lam. Ellipsostomata Bl. *Descr.* Spiral, globular, sometimes discoidal, generally umbilicated, covered with a horny epidermis; spire short, whorls rapidly enlarging; aperture elliptical, deciduous, rounded anteriorly; peristome nearly or quite entire, thickened, and slightly reflected; operculum testaceous, annular, with a subcentral nucleus. *Obs.* These freshwater shells of which a few fossil species occur, are easily distinguished from other genera, by their obvious characters, particularly by the thick, horny, greenish brown epidermis which covers them, and the rotundity of their form. One species the A. Cornu-arietis, which forms the type of Lamarck's genus Planorbis, requires notice, on account of its flatness, but may be known by the aperture, which in the Ampullaria is longer than wide, and in Planorbis, the contrary. Lanistes, Montf. is described from a *reversed* Ampullaria. The Ampullaria is vulgarly called the Idol Shell, and is said to be held in great veneration by the S. American savages. The animal has a large bag, opening beneath, placed on the side of the respirator cavity. It is supposed that the animal has the power of filling this bag with water, and that it is thus enabled to live a long time out of water. They have been brought as far as from Egypt to Paris, alive, packed in sawdust. *Ex.* Fig. 318.

ANAS'TOMA, or Anostoma, Lam. (From Ανα, *ana*, backwards; Στομα, *stoma*, mouth.) *Fam.* Colimacea, Lam. A genus of land shells, so named from the singular circumstance of the last whorl taking a sudden turn and reflecting the aperture upwards, so as to present it on the same plane with the spire, so that the animal must walk with the spire of its shell downwards, resting on its foot. In other respects the two species forming this genus resemble the other Helices, and belong to De Ferusac's division Helicodonta. Tomogerus is Montfort's name for this genus. A. Depressum, fig. 271, 272.

ANA'TIFER. Brug. Anatifera, Lam. This name which signifies "*Duck-bearing*," has been given to the shells commonly called Barnacles, on account of an absurd notion entertained among the ancients, that they enclosed, in an embryo state, the young of the Barnacle Duck, the beautiful bunch of ciliæ, which serve the purpose of agitating the water so as to draw in the animalculi for food, being taken for the feathers of the future bird. For a description of these shells see Pentelasmis, and fig. 34.

ANATI'NA. Lam. (*That which belongs to a duck.*) *Fam.* Myaria, Lam. Pyloridea. Bl. *Descr.* Thin, transparent, generally inequivalve, inequilateral, transverse, marine; hinge with a spoon-shaped process, containing the cartilage and a small, testaceous, moveable appendage connected with the interior of the hinge. By this appendage, and the thinness of the shells, this genus may be known from Mya. A. rostrata, fig. 69, resembles a duck's bill in form.

ANATINEL'LA. Sow. (Diminution of *Anatina.*) A genus so named from its resemblance to Anatina, from which it differs, in being destitute of the internal appendage, and having no sinus in the palleal impression. Only one species is known, which was brought from Ceylon by Dr. Sibbald. A. Sibbaldii, fig. 70.

ANA'TOMUS. Montf. 2, pl. 279. A microscopic shell, appearing from the figure to be a Scissurella.

ANCILLA'RIA. Lam. Ancilla, Lam. (from latin, *a handmaid.*) *Fam.* Enroulées, Lam. Angyostomata, Bl. *Descr.* Smooth, oblong, subcylindrical, spire short, not canaliculated; aperture elongated, effuse, emarginated anteriorly; columella tortuous, oblique, tumid, truncated. *Obs.* The Ancillariæ are pretty shining shells, enveloped almost entirely in the foot of the animal. They resemble Oliva, from which they may be distinguished by the sutures of the spire being filled up with the shelly enamel, which nearly covers the surface, the whorls in Oliva being separated by a distinct canal. *Ancillaria* may be known from *Terebellum*, by the tumid varix at the base of the columella. The well known Ivory Shell (*Eburna glabrata* Lam.) belongs to this genus, of which a few fossils are

found in London clay, Calc-grossiér and green sand, Turin. A. glabrata, fig. 455. A. cinnamonea, fig. 456.

ANCULO'SA. Say. *Fam.* Melaniens, Lam. Ellipsostomata, Bl. A genus proposed to include some freshwater shells, resembling Melania; the only difference between them being, that the spire of Anculosa is more depressed, and the anterior of the outer lip more rounded, than in Melania. *Ex.* fig. 314.

AN'CYLUS. Müll. *Fam.* Calyptraciens, Lam. Otides Bl. *Descr.* Thin, obliquely conical, patelliform; apex acute, turned posteriorly; aperture oval, with simple margin. *Obs.* Although the little freshwater shells described under this name resemble Patella, the animals which they enclose are nearly allied to Lymnæa. A. Fluviatilis, fig. 246.

ANDROM'EDES. Montf. Vorticialis, Lam. *Fam.* Nautilacea, Lam. A genus of microscopic Foraminifera.

ANGULI'TES. Montf. Species of fossil Nautili, described by Blainville as not umbilicated, with a dorsal keel and angular aperture. Nautilus Triangularis, Buffon.

ANGYOS'TOMA. Bl. The third family of Siphonobranchiata, Bl. containing the genera, Strombus, Conus, Terebellum, Oliva, Ancilla, Mitra, Voluta, Marginella, Peribola, Cypræa, Ovulum.

ANNELI'DES. Lam. The ninth class of "Invertebrated animals," divided into three orders, viz. A. Apodes, A. Antennés, and A. Sedentaires. The last only contains testaceous mollusca. The animals are vermicular, some naked, others inhabiting shelly tubes. See Sedentary Annelides.

AN'NULATED. (Annus, a ring.) Composed of or surrounded by rings, as Tubicinella, fig. 14.

AN'ODON. Lam. *Fam.* Submytilacea, Bl. Nayades, Lam. A genus composed of such species of Unio as are destitute of teeth on the hinge. A. Cataractus, fig. 152.

AN'OLAX. Brogn. Ancillaria, Auct.

ANOMALI'NA. D'Orb. A genus of microscopic Foraminifera.

ANO'MIA. Linn. *Fam.* Ostracea, Lam. and Bl. *Descr.* Irregular, inæquivalve, sub-equilateral, thin, pearly, adhering to marine substances by means of a bony appendage, which forms an operculum to a large circular opening in the lower valve, near the hinge; muscular impression divided into three irregular portions; hinge destitute of teeth, with a short cartilage. *Obs.* The Linnæn genus included not only the shells, to which our description would apply, but also various other genera, such as Crania, Orbicula, Terebratula, &c. which belong to the Brachiopoda, and are very distinct. Fig. 186, A. Ephippium.

ANOS'TOMA. See Anastoma,

ANSA'TES. Klein. Species of Patella, which have a produced recurved beak. Helcion, Montf. *Ex.* Patella Pellucida, fig. 230.

ANTEN'OR. Montf. A genus of microscopic Foraminifera.

ANTE'RIOR of a *bivalve*, is the side opposite to that on which the ligament is placed; of a *spiral univalve*, that part of the aperture which is at the greatest distance from the apex; of a *symmetrical conical univalve*, such as Patella, that part where the head of the animal lays, indicated by the interruption of the muscular impression; of *Cirripedes*, that part where the ciliæ protrude; of *Brachiopoda*, that part which is furthest from the umbones. Lamarck and others, have created much confusion by their inconsistencies on this subject, describing the same part of a shell at one time as anterior, at another, posterior; but generally the reverse of the above arrangement, which is founded upon the position of the head of the animal, and generally adopted. The anterior will be indicated by the letter *a*, in fig. 119, 421, 229, 34, 202.

ANTIGO'NA. Schum. Venus Cancellata, Lam.

AN'TIQUATED. This word, signifying *out of date*, is used but rarely to express that composition which obtains in shells, by each fresh deposit or layer of calcareous matter, forming a new margin, which being replaced by its successor, no longer constitutes the margin, and is consequently out of date.

A'PEX. This term has no regard to the natural position of a shell, but is used mathematically to express the nucleus, or first formed part, or point of the spiral cone, of which almost every shell may be supposed to consist. From this point the shell rapidly or slowly enlarges as it descends and takes a spiral, arcuated, straight, oblique, convolute, or irregular course. The Apex will be indicated by the letter *a*, in fig. 282, 466.

A'PERTURE. The entrance to the spiral cavity of univalve shells; it is composed of the inner lip, or *labium*, which generally forms the axis of the shell, and the outer lip or *labrum* on the opposite side. In fig. 318, the aperture will be pointed out by the letter *a*.

APHRODI'TA. Leach. Cardium Greenlandicum, Auct. fig. 123*, and other similar species, the teeth of which are very indistinct.

APLEURO'TIS. Rafinesque. Unfigured and imperfectly described, as somewhat differing from Terebratula and Magas.

A'PLODON. Rafinesque. Genus proposed at the expence of Helix, but imperfectly described.

APLUS'TRA. Schum. Bulla Aplustra, Auct. fig. 249.

APLYSIA'CEA. Bl. The second family of the order Monopleurobranchiata, Bl. The animals composing this family are either destitute of shells, or are provided with internal ones. Genera, Aplysia and Dolabella.

APOL'LON. Montf. Ranella Ranina, Auct. Placed by Blainville in that division of Ranella, which is characterized as being umbilicated, fig. 393.

APOROBRANCHIA'TA. Bl. The first order of the second section of Paracephalophora Monoica, Bl. The Thecosomata is the only family of this order containing any approach to shells, these are Hyalæa and Cymbulia.

APLY'SIA. Lam. (*a*, without; πλνω, *pluo*, to wash.) *Fam.* Laplysiens, Lam. Aplysiacea, Bl. *Descr.* Horny, transparent, clypeiform, placed horizontally on the back of the animal, with its convex side uppermost; apex slightly incurved. *Obs.* The animal producing this shell has derived its name from the purplish liquor which it exudes, when disturbed. In contour it presents a certain likeness to a hare crouching, and on this account was called *Lepus marinus*, or sea hare, by the ancients. The shell bears a strong resemblance to Dolabella, which however is much thicker and more testaceous. A. Petersoni, fig. 254.

APORRHA'IS. Petiver. See Rostellaria. A. Pes-pelicani, f. 404.

AQUIL'LUS. Montf. Triton Lampas, Cutaceus, &c. Auct. Placed by Blainville in the division of the genus Triton, which is described as having a short spire, being covered with tubercles, and umbilicated. Triton Cutaceus, fig. 399.

AR'CA. Lam. (Lat. *a boat.*) *Fam.* Arcacea, Lam. *Descr.* Obliquely transverse, subquadrate, æquivalve, or nearly so, inæquilateral, thick, ventricose, longitudinally ribbed, dentated near the inner margins; hinge rectilinear, forming a flat external area, upon which the ligament is spread in transverse rows, and having a series of small regular teeth, extending on both sides of the umbones in each valve; muscular impressions distant. These shells are found recent, in various marine localities, fossil, in the tertiary deposits. The Arca Noæ, formerly regarded as the type of this genus, has, with several other species, been separated from it under the name Bysso-arca, by Swainson, on account of an hiatus in the ventral margin to admit the passage of a byssus; this is not found in true Arcæ. Arca Antiquata, fig. 131. Bysso-arca Noæ, 132.

ARCA'CEA. Lam. A family of the order Conchifera Dimyaria. Lam. Consisting of bivalve shells, provided with a linear series of small teeth on the hinge. In this family Lamarck describes the genera Cucullæa, Arca, Pectunculus, and Nucula, to which may perhaps be added, Crenella, Solenella, Sow. and Myopara, Lea. Fig. 131 to 138.

ARCHA'IAS. Montf. A genus of microscopic Foraminifera.

ARCHON'TE. Montf. Hyalæa, Auct.

ARCINEL'LA. Schum. Chama Arcinella, Auct.

ARC'TICA. Schum. Cyprina Icelandica, Auct.

AR'CUATED. (Arcus, an arch.) Bent in the form of an arch, as Dentalium, pl. 1.

ARETHU'SA. Montf. A genus of microscopic Foraminifera.

ARGONAU'TA. Auct. Commonly called the Paper Sailor. *Fam.* Pteropoda, Bl *Order.* Cephalopoda Monothalamia, Lam. *Descr.* Light, thin, symmetrically convolute, carinated, concentrically ribbed or tuberculated; aperture large, elongated; peritreme simple, acute, interrupted by the body whorl. *Obs.* This elegant production of the Mediterranean and other Seas, is inhabited by a molluscous animal called the *Ocythoe*, provided with tuberculated arms, which, hanging over the sides of the aperture, give to the whole the appearance of a vessel propelled by oars; a poetical illusion, still further heightened by the broad flat membranes of two of the arms, which being spread vertically, present the idea of sails. Pliny has described it as sailing on the Mediterranean waters. Scientific men have long been engaged in the interesting discussion, whether the animal really belongs to the shell in which it is found, or whether, having destroyed the rightful owner, it has possessed itself of the "*frail bark.*" A. Argo, fig. 485.

AR'TEMIS. See VENUS. *Ex.* fig. 118.

ARTI'CULATED. Jointed. Applied to distinct parts of shells, that are fitted or jointed into each other, as the valves of Chitones. The operculum of Nerita is *articulated* to the columella.

ARTICULI'NA. D'Orb. A genus of microsopic Foraminifera.

ASIPHONIBRANCHIA'TA. Bl. The second order of Paracephalophora Dioica, Bl. Consisting of spiral univalves, which have no notch or canal at the anterior part of the aperture. This order is divided into families, Goniosomata, Cricosomata, Ellipsostomata, Hemicyclostomata and Oxystomata.

ASPERGIL'LUM. Lam. (From *Aspergo*, to sprinkle.) *Fam.* Tubicolæ, Lam. Pyloridea, Bl. *Descr.* The small, equal, equilateral valves are cemented into, so as to form part of a large tube; the umbones are slightly prominent outside. The tube is elongated, rather irregular, granulated with sandy particles, and terminated at the base by a convex disc, which is perforated by small pores, elongated into tubes round the edge, presenting the appearance of the spout of a watering pot, whence the name is derived. *Loc.* New Holland, Java, New Zealand, Red Sea. Fig. 44. Aspergillum Vaginiferum.

ASSIMIN'EA. Leach. *Fam.* Turbinacea, Lam. *Descr.* Inclining to oval, light, thin, covered with a horny epidermis, spire produced into an acute pyramid; whorls slightly angulated in the centre, rounded beneath; aperture elliptical, slightly modified by the last whorl; inner lip planed; outer lip thin. Found in brackish water; one species may be procured abundantly on the muddy shores of the Thames, in Kent. Without comparing the animals, it is difficult to distinguish this genus from some species of Littorina. Fig. 363.* A. Grayana.

ASTACO'LUS. Montf. Microsopic. CRISTELLARIA Crepidula. Lam.

ASTAR'TE. Sow. (Name of a Sidonian goddess, *Ashtaroth* in scripture.) *Fam.* "Nymphacea, Lam." *Gen.* Crassina, Lam. *Descr.* Suborbicular, equivalve, inequilateral, thick, compressed; *hinge* with two solid diverging teeth in the right valve, one tooth and a slight posterior elevation in the left; muscular impressions, two in each valve, uniform, united by a simple palleal impression; ligament external. *Obs.* This genus differs from Venus, Cytheræa, &c. in not having a posterior sinus in the impression of the mantle. The hinge also differs in having but two cardinal teeth. Astarte differs from Crassatella, in having an external ligament. Nearly all the species known are British. The fossils occur in Crag, Lower Oolite, &c. Fig. 110. A. Danmoniensis.

ASTROLE'PAS. Klein. Coronula Testudinaria, Auct. *Chelonobia*, Leach, fig. 15.

ATLANTA. Lesueur. *Fam.* Pteropoda, Lam. and Bl. *Descr.* Spiral convolute, transparent, fragile, compressed; with a broad fimbriated dorsal keel, and a narrow aperture. This shell, which is called, "*corne d'ammon vivant*," is found in the Atlantic. The small Pteropod, figured in Sowerby's genera as Limacina, belongs to this genus. Atlanta Helicialis, fig. 220.

ATRYPA. Min. Con. Spirifer, Sow. Fig. 203. A. Reticulata.

ATTACHED. Shells are attached to marine substances in various ways; sometimes by a *byssus*, or bunch of silky fibres, passing through an opening between the valves, or a perforation in the shell, as in Mytilus and Orbicula; sometimes by a portion of the shell itself, as in Chama, Spondylus, Serpula, &c. and sometimes by a fleshy tendinous process called a pedicle, as in all the "Pedunculated Cirripedes," Lam.

A'TYS. Montf. Generic name for those species of Bulla, described "as convolute, with the last whorl covering the rest and hiding the spire, the aperture rounded at both ends." Bulla Naucum, Auct. fig. 250.

AURI'CULA. Lam. (Dim, from *Auris*, an ear.) *Fam.* Auriculacea, Bl. Colimacea, Lam. *Descr.* Oval or oblong, cylindrical or conical, solid; aperture long, narrow, generally straightened in the centre, rounded at the base, with two or three strong folds on the inner lip, and the outer lip thickened, reflected or denticulated; spire short, obtuse. Epidermis horny, brown. *Obs.* This description includes the A. Coniformis fig. 298, and several other conical species, with narrow apertures, which formed the genus *Melampus*, Mont. and *Conovolus*, Lam. and excludes the *A. Dombeyana*, Lam. fig. 300, and several similar species, which being more rotund, having thin outer lips, and but one fold on the columella, are described under the generic name Chilina by Gray It appears rather doubtful whether the Auriculæ are marine or fluviatile, but the animals appear to be amphibious.

The Auriculæ formed part of the genus Voluta of Linnæus. Fig. 297. A. Judæ, fig. 298. A. Coniformis.

AURI'CULATED. Some bivalve shells, such as *Pecten*, fig. 171, 172, have a flat, broad, somewhat triangular, process on one or both sides of the umbones, called an *auricle* or little *ear*. If on one side only, they are said to be *uni-auriculated;* if on both, they are said to be *bi-auriculated*.

AURICULA'CEA. Bl. The second family of the order Pulmobranchiata, thus described: "Shell thick, solid; aperture more or less oval, always large, rounded anteriorly, and contracted by teeth or folds on the columella. This family contains the genera Pedipes, Auricula, Pyramidella.

AURI'FERA. Bl. Otion, Auct.

AU'RIFORM. (From *Auris*, an ear; *forma*, shape.) *Ex.* Haliotes, fig. 338.

AURISCAL'PIUM. Megerle. Anatina, Lam.

AVI'CULA. Lam. (From avis, a bird.) *Fam.* Malleacea, Lam. Margaritacea, Bl. *Descr.* Inequivalve, inequilateral, foliaceous, subquadrate, oblique, pearly; hinge rectilinear, drawn out into auricular appendages, with a small indistinct tooth in each valve, an elongated, marginal ligamentiferous area, widened near the centre. One circular, subcentral, muscular impression in each valve, with a series of smaller ones in a line towards the umbones. *Obs.* The Meleagrinæ of Lam. Margaritiferæ, Schum. which are included in this description, consist of the more rounded species, which do not present that elegant oblique form, from which the genus Avicula receives its name. A. Hirundo, fig. 163. A. Margaritifera, fig. 164. From the latter are obtained oriental pearls. Fossil species occur in the London clay, &c.

AX'INUS. Sow. *Descr.* Equivalve, transverse; posterior side very short, rounded, with a long ligament, placed in a furrow, extending along the whole edge; anterior side produced, angulated, truncated, with a flattish lunette near the beaks. Mr. Sowerby, who describes this shell in the Mineral Conchology, does not consider his genus as established, not having seen the hinge.

AX'IS. The imaginary line, around which the whorls of a spiral shell revolve; the extremities of the axis are pointed out in fig. 379. *a. a.* See "Columella."

AZE'CA. Leach. *Fam.* Colimacea, Lam. A small pupiform shell, thus described by Fleming: "Aperture of the shell oblique, narrow retrally." A. Tridens. (Turbo Tridens, Mont. Test. Brit. 338. t. xi. fig. 2.) Fig. 290.

AZE'MUS. Ranz. Leach.

BA'CULITES. Lam. *Fam.* Orthocerata, Bl. Ammonacea, Lam. *Descr.* Straight conical, tubular, laterally compressed, chambers divided by very sinuous, lobed septa, the last elongated; aper-

ture elliptical; siphon dorsal. *Obs.* This genus differs from Orthoceras in the same manner that Ammonites differs from Nautilus, having its septa exceedingly lobated and sinuous. A *Baculite* might be described as a straight Ammonite. Known only fossil, in the limestone of Mæstricht and Valognes. Fig. 484, B. Faujasii.

BA'LANUS. Lam. (An acorn, *Gland de Mer*, fr.) *Order*, Sessile Cirripedes, Lam. *Fam.* Balanidea, Bl. *Descr.* Shell composed of six valves, locked into each other, side by side, in a conical circle, closed at the base by a flat, cylindrical, or cup-shaped valve, by which it is generally attached, and at the apex by a conical operculum, consisting of four valves, in anterior and posterior pairs. Each valve of the shell is divided into a rough triangular portion, pointed towards the apex, and a flat area on each side. *Obs.* This description includes the Acasta of Leach. Balanus is the only genus of Sessile Cirripedes, the shells of which consist of six principal valves, except *Coronula*, the shells in which have no shelly base, are flatter, and have the valves of the operculum placed horizontally. The Balani are common in all seas, adhering to rocks, corallines, ship bottoms, and to each other. The fossil species are found in the newest strata, at Bordeaux, Paris, &c. Fig. 25. B. Tintinabulum. 26, Acasta Montagui. 27, Balanus galeatus.

BALAN'IDEA. Bl. The second family of the class Nematopoda, Bl. Sessile Cirripedes, Lam.

BA'LEA. Gray. Colimacea, Lam. *Descr.* Spiral, turrited, concentrically striated, sinistral, and covered with a thin brown epidermis; spire composed of numerous whorls, gradually increasing in size; aperture small, subquadrate; peritreme entire, slightly thickened, with a very slight fold on the columella, axis perforated. *Obs.* A genus of small land shells, found in moss at the root of trees in Britain, not very nearly resembling any other land shells, except Clausilia, of which they want the clausium. They have been placed in Helix by Ferussac, and in Pupa by Draparnaud. B. Fragilis, fig. 296. *Helix perversa*, Fer. *Pupa perversa*, *Drap.*

BAR'NACLES. Pentelasmis, Auct. Called Anatifa by Linnæus and Lamarck, from the ancient notion that they were the eggs or embryos of the Barnacle Duck. See Anatifera.

BASE. In all shells that are attached to marine substances, the base is that part of the shell which forms the point of attachment. *Ex.* The attached valve of Spondylus; the basal plate of Balanus; the lower part of the pedicle of Pentelasmis; in unattached bivalves, the margin opposite the umbones, where the part analagous to the foot of the animal protrudes; in spiral univalves, the aperture, which rests on the back of the animal when walking. Some authors have used the term *base* as simply

opposed to *apex*, and would apply it to the anterior of the aperture.

BA'TOLITES. Montf. HIPPURITES, Auct.

BEL'EMNITES. Auct. (Βελεμνον, *belemnon*, a dart or arrow.) *Fam.* Orthocerata, Bl. and Lam. *Descr.* Straight, conical, consisting of two parts; *external* portion forming a thick, solid shield, with a cavity at the base, to admit the internal portion or nucleus, which is more mathematically conical, and is divided into chambers, by smooth, simple septa, perforated by a lateral siphon. *Obs.* These singular fossils have long attracted the attention of philosophers, as well as of the vulgar, from whom they have received the various curious appellations of Thunderstones, Petrified Arrows, Petrified Fingers, Devil's Fingers, Spectre Candles, &c. The above description includes the genera Hibolithes, Porodragus, Cetocis, Acamas, and Paclites, Montf. Actinocamax, Stokes.

BELLER'OPHON. Montf. *Descr.* Convolute, symmetrical, umbilicated, with a double dorsal ridge; aperture wide, semilunar. *Obs.* The general appearance of the two or three fossils composing this genus is like that of Nautilus, but not being chambered shells they approach very near to Argonauta, from which they differ only in the thickness of their shell, and in roundness of form. This genus is placed by Montfort among chambered shells, and by Blainville next to Bulla. It belongs to the Monothalamous Cephalopada of Lamarck. Fig. 486, 487, B. Tenuifasciata.

BIAPHO'LIUS. Leach. Supposed to be identical with Hiatella.

BI'FID. Divided, double.

BIFRON'TIA. Desh. Also OMALAXIS, Desh. *Fam.* Turbinacea, Lam. *Descr.* Discoidal, planorbicular, with whorls sometimes disunited; umbilicus deep, keeled at the margin; aperture longitudinal, subtriangular, somewhat dilated; outer lip acute, separated by a deep notch at both extremities. *Obs.* We do not see any reason for separating this genus from SOLARIUM, except in the last mentioned character. The few fossil species which this genus contains (Solarium disjunctum, Bifrons, &c.) are found principally in the Paris Bason. Fig. 354, Solarium Bifrons.

BIGENERI'NA. D'Orb. A genus of microsopic Foraminifera.

BIROSTRI'TES. Lam. (Beak.) A fossil formerly considered as a bivalve shell with conical umbones, and placed in the family of Rudistes, by Lamarck; but now known to be an internal cast of Sphærulites.

BISIPHY'TES. Montf. Described by him as like a Nautilus, but having two distinct siphons. No such fossil is now known to Naturalists.

BI'TOMUS. Montf. A microsopic shell, deriving this generic appellation, from the appearance of a double aperture.

BIVALVE, see errata

BORE'LIS. Montf. MELONIA, Bl. A genus of microsopic Foraminifera.

BRACHIO'PODA. A family of symmetrical bivalves, belonging to the third section of Lamarck's order, Conchifera Monomyaria, and containing the genera Orbicula, Terebratula, and Lingula; to which may be added, Thecidium, Productus, Spirifer, Magas, Pentamerus, Crania, Strigocephalus, Strophomena, and some others enumerated in the explanation of fig. 201 to 219.

BRANCHI'FERA. Bl. The second family of the order Cervicobranchiata, containing the following genera of symmetrical univalves:—Fissurella, Emarginula, and Parmophorus.

BRIS'MÆUS or BISNEUS. Leach. *Order.* Pedunculated Cirripedes. Lam. *Descr.* Seven plates, three pairs lateral, one dorsal; form, cylindrically conical; pedicle not described. *Hab.* Holes in corals. B. Rhophodius, fig. 38. *Obs.* This minute shell most nearly resembles Pollicipes Mitellus, fig. 37*, but the difference may be seen at once by comparing the figures.

BRON'TES. Montf. This generic name is given to such species of MUREX as have a very long, closed canal, with a short spire, circular aperture, and are destitute of spines and ramifications. Brontes, (Murex) Haustellum, fig. 396.

BUCAR'DIA. Schum. ISOCARDIA, Auct.

BUC'CINUM. Linn. *Fam.* Purpurifera, Lam. Entomostomata, Bl. *Descr.* Subovate or oblong, covered with an epidermis; spire turrited, consisting of few whorls; aperture wide, subovate, terminating anteriorly in a very short canal, reflected over the back; outer lip simple, slightly reflected; inner lip spread over a portion of the body whorl, terminating in a thick, smooth columella; operculum horny. *Hab.* British Seas, Northern Ocean, coast of Africa. Most of the fossil species occur in Crag, some in upper marine formation and London clay. *Obs.* There are considerable difficulties in keeping this genus distinct from others nearly related to it, into which many of the species run by imperceptible gradations. The genus *Nassa* has been separated, on account of the little notch which terminates the columella. Some species of Terebra come so close upon the Buccina, that it is difficult to say where one genus ends and the other begins. T. Buccinoides, fig. 427. Buccinum Undatum, the common Whelk, fig. 421.

BU'FO. Montf. Generic division of Ranella, characterized as not umbilicated.

BULIMI'MA. D'Orb. A genus of microsopic Foraminifera.

BULIMULUS. Leach. *Bulimulus trifasciatus* (Bulinus Guadaloupensis, Auct.) occurs in the limestone which encloses the half fossilized human remains, from the Grande Terre of Guadaloup, and differs from Bulinus in the thinness of the outer lip, fig. 283.

BULI'NUS. Brug. *Fam.* Colimacea, Lam. Limacinea, Bl. *Descr.* Oval or oblong, light, covered with a thin epidermis; spire obtuse, variable in length and in the number of whorls, which are generally few; aperture wide, oval, rounded anteriorly; outer lip simple, reflected, joining the columella, without an emargination; inner lip reflected over part of the body whorl. *Hab.* Land, East Indies, Europe, &c. *Obs.* The genus Bulinus forms part of the genus Helix of De Ferussac, and is designated the sub-genus Cochlostyla. Known from Achatina by not having the notch at the junction of the inner and outer lips. The reproduction of the animal is by means of eggs, which are as firm and opaque as those of birds.

BUL'LA. Auct. *Fam.* Bulléens, Lam. Akera, Bl. *Descr.* Generally thin, smooth, oval, oblong or cylindrical, more or less convolute, spire short, depressed, or hidden by the last whorl; aperture long, wide anteriorly, gradually narrowing towards the spire; outer lip thin, inner lip spread over a part of the last whorl. *Obs.* The shells composing this genus are very variable in form. The light horny species, with an elastic lip, is called Akera, fig. 247. The more decidedly convolute species which cover the spire by the volution, are the Atys. Montf. B. Naucum, fig. 250. B. Lignaria, fig. 251, is Scaphander of some authors. The light, thin species, with extremely wide aperture, fig. 248, is Bullæa Aperta, Lam. The genus Bullinula of Dr. Beck consists of those species which have more produced spires, fig. 253. The Bullæ are marine, and inhabit all climates. The fossil species occur in tertiary beds.

BULL'EENS. Lam. A family belonging to the first section of Lamarck's order, Gasteropoda, containing the genera Akera, Bulla and Bullæa.

BULLI'NULA. Beck. Species of Bulla, with produced spires, fig. 253.

BYSSOAR'CA. (*Byssus* and *Arca.*) *Fam.* Arcacea, Lam. A genus of bivalve shells, composed of the Arca *Noæ*, and several other species, separated from the genus Arca, on account of their shells being attached by means of a byssus passing through an hiatus, which may be observed in the ventral margins, B. *Noæ*, fig. 132.

BYSSOMY'A. Cuv. (*Byssus* and *Mya.*) De Blainville states, that although the shell of this proposed genus resembles Saxicava, the animal is sufficiently different to justify the separation.

BYS'SUS. (Βυσσος, *byssus*, ancient name for linen.) The tendinous fibres, by which some shells are in a manner anchored or moored to submarine substances. A fine instance of this is seen in the Pinnæ, which are like large muscles, and throw out a large full bunch of these silky fibres, of which gloves have been made: there is a pair to be seen at the British Museum. The Byssus is peculiar to bivalve shells, such as Muscles, Hammer Oysters, Arca Noæ, &c.

CAL'CAR. Montf. Genus composed of TROCHUS STELLARIS, Lam. and other depressed species of Trochus, which are characterized by a stellated keel round the angle of the last whorl, but not including T. Imperialis, which is the genus Imperator, Mont. The difference is that the latter is umbilicated, and the former is not. T. Stellaris, fig. 358.

CALCE'OLA. Lam. *Fam.* Rudistes, Lam. and Bl. *Descr.* Æquilateral inæquivalve, triangular; umbones separated by a large triangular disc in the lower valve; cardinal margin straight, linear, dentated; lower valve large, deep; upper valve flat, semiorbicular, forming a kind of operculum to the lower. *Obs.* Linnæus places this singular shell, which is known only in a fossil state, in the genus Anomia. Lamarck places it among his Rudistes, but Sowerby, in the Genera of Shells, states, that it should be added to the family of Brachiopoda: fig. 194, 195, C. Sandalina.

CALLAN'TICA. Gray. POLLICIPES Hispidus, Leach.

CALLI'RHOE. Montf. p. 362, v. 2. Appears to be drawn from the nut or inner portion of a large Belemnites.

CALLOS'ITY. A term used in general zoology to express those hard, horny tumidities, formed in the skin of some animals, (such as the dromedary, for instance,) in those parts which are most frequently used. It is not used in this sense by conchologists, who apply it to those undefined tumidities or bumps which appear in the inner surface and hinge of some bivalve shells. Glycimeris, fig. 67. Natica, fig. 327, 328.

CALPUR'NUS. Montf. OVULUM *Verrucosum*, Auct. Distinguished by the small circular tubercle or wart at the back of each extremity of the shell. Fig. 441.

CALYP'TRIDÆ. Lam. A family of the first section of the order Gasteropoda, Lam. containing the genera, Parmophorus, Emarginula, Fissurella, Pileopsis, Calyptræa, Crepidula and Ancylus; to which may be added, Infundibulum, and other genera enumerated in explanation of figures 234 to 246.

CALYP'TRACEA. Bl. Second family of the order Scutibranchiata, Bl. "Shell more or less conical, not spiral, or very slightly so; aperture large and entire." Genera, Crepidula, Calyptræa, Capulus, Hipponyx, Notrêma

CALYP'TRÆA. Lam. *Fam.* Calyptracea, Lam. & Bl. *Descr.* Conical, patelliform, irregular, with an internal, lateral, salient appendage, varying in form. *Obs.* The internal appendage is in some species cup-shaped, in some it juts out of the centre like a fork, in others it is only a small flap, and in others it is a spiral disc. These last, which are shaped like Trochus, are separated by De Montfort, under the appellation INFUNDIBULUM Trochatella, Sw. The Calyptræa may be known from Crepidula by the internal appendage, which in the latter is a flat plate reaching half way across the aperture. Fig. 234, 235, 236.

CAMACE'A. (*Camacées*, Lam.) A family of the order Conchifera Dimyaria, containing the genera Diceras, Chama, Ethæria.

CAMERI'NA. Brug. Nummulites, Auct.

CAMIL'LUS. Montf. A genus founded upon a figure in Soldani's Test. Micros. which represents a minute spiral shell with a three cornered aperture turned back over the last whorl.

CAMPULO'TUS. Guetard. Magilus, Auct.

CANAL'. A term used to express the kind of groove or gutter which characterizes some spiral univalves, at the union of the inner and outer lips at the front part of the aperture. This canal is drawn out in some shells to a considerable length, in others it is turned over the back. The family Canaliferæ, Lam. (fig. 372 to 401,) are all provided with this canal.

CANAL'ICULATED. Applied generally to any distinct groove or canal.

CANALI'FERA. (Canalifères, Lam.) A family belonging to the order Trachelipoda, Lam. containing the genera Cerithium Pleurotoma, Turbinellus, Cancellaria, Fasciolaria, Fusus, Pyrula, Struthiolaria, Ranella, Murex, Triton. To which may be added Phos, and other genera enumerated in explanation of figures 372 to 401.

CANCELLA'RIA. Lam. (From *Cancellatus*, cross-barred, like window frames or net work.) *Fam.* Canalifera, Lam. Entomostomota, Bl. *Descr.* Oval, thick, cancellated; spire generally short, pointed; aperture sub-ovate, emarginated anteriorly, pointed at the posterior extremity; outer-lip marked within by transverse ridges; inner-lip spread over part of the body whorl, terminating in a straight, thick, obtuse columella, with several strong oblique folds. *Hab.* Indian Ocean, Coast of Africa and America. Fossils found in London Clay and Calc-grossièr of Paris. Differing from Turbinellus in form and in the transverse ridges inside the outer lip. Fig. 385. C. reticulata.

CAN'CELLATED. (From Cancellatus, cross-barred.) Applied generally to any shells which are marked by ridges crossing each other, as Cancellaria, fig. 385.

CAN'CRIS. Montf. Crepidulina, Bl. A genus of microscopic Foraminifera.

CAN'OPUS. Montf. A genus of microscopic Foraminifera.

CANTHA'RIDUS. Montf. Trochus Iris, Auct. and analogous species. Elenchus, Humphr.

CAN'THARUS. Montf. A genus of microscopic Foraminifera.

CAN'THROPES. Montf. Described as like a Nautilus, with the whorls increasing so very gradually that the dorsal edge of the aperture advances but little beyond the last whorl. This is not mentioned in Blainv. or Lamarck.

CAPI'TULUM. Gray. Pollicipes Mitellus, Lam.

CAPRI'NA. D'Orb. Diceras, Auct.

CAPRI'NUS. Montf. Appears from the figure to be a HELIX.

CAP'SA. Brug. *Fam.* Nymphacea, Lam. *Descr.* Equivalve transverse, subequilateral, subtrigonal; cardinal teeth, two in one valve, one notched in the other; lateral teeth remote, obsolete; ligament external; muscular impressions two in each valve; impression of the mantle with a large sinus. *Obs.* This genus is so nearly related to Donax, that it is difficult to distinguish it at first sight. The Capsæ, however, have not the short, plane, straight posterior side, the distinct lateral teeth, nor the crenated margins which characterize nearly all the Donaces. They are known from Erycina, by not having the pit in the hinge for the ligament. Fig. 109. C. Brasiliensis.

CAP'ULUS. Montf. PILEOPSIS, Lam.

CARDIA'CEA. (Cardiacées. Lam.) A family of the order Conchifera Dimyaria, Lam, containing the genera Cardium, Cardita, Cypricardia, Hiatella, Isocardia, and others enumeraed in explanation of figures 122 to 130.

CARDINAL TEETH. The teeth upon the hinge, immediately under the umbones of bivalve shells, as distinguished from the lateral teeth, which are placed at a distance on either side. In Venus, fig. 119, the cardinal teeth are marked by the letter *c*.

CARDIS'SA. Sw. A genus composed of such species of CARDIUM as are heart-shaped, having the short side truncated. *Ex.* Cardium Dionæum, fig. 122.

CARDI'TA. Brug. *Fam.* Cardiacea, Lam. Submytilacea, Bl. *Descr.* Equivalve, inequilateral, ovate, subquadrate, or oblong, marked externally by ribs radiating from the umbones and forming a crenated margin within; cardinal teeth, in one valve, one, long, thick, oblique, another short, more straight; in the other valve one, long, oblique, thick; muscular impressions, two, rather oval; impression of the mantle not sinuated. *Obs.* This description includes Lamarck's genus Venericardia, which although consisting of the more oblong species, are not considered sufficiently distinct to justify a continuance of the separation. Cypricardia is distinguished by a remote lateral tooth. Fig. 124, Cardita Calyculata.

CAR'DIUM. Linn. *Fam.* Cardiacées, Lam. Conchacea, Bl. *Descr.* Equivalve, subequilateral, sometimes gaping posteriorly, ornamented externally by ribs radiating from the umbones; cardinal teeth, two in each valve, locked into each other crosswise; lateral teeth two in each valve, remote; muscular impressions two in each valve, remote; impression of the mantle entire; ligament external, round. *Obs.* Although this genus includes many remarkable forms, the characters are so easily defined that there is no difficulty in distinguishing it from any other genus. Fig. 122. C. Maculosum. Fig. 123*. C. Grœnlandicum, APHRODITA, Lea. Fig. 123**. C. Hemicardium. Gen. HEMICARDIUM.

CARINA'RIA. Lam. *Class.* Cephalopoda. *Division.* Monothalamia, Lam. *Fam.* Nectopoda, Bl. *Descr.* Symmetrical, or nearly so, conical, thin, glassy, fragile, patelliform; with a fimbriated dorsal keel; apex convolute, bent forwards; aperture oval, pointed at the dorsal extremity. *Hab.* Amboyna and Mediterranean sea. *Obs.* A most singular and beautiful shell, remarkable for its transparency, its fragile structure, and the dorsal keel, whence it derives its name. It was once so rare that a specimen would realize one hundred guineas. Fig. 488. C. Mediterranea.

CA'RINATED. (From Carina, a keel.) Applied to any shell having a raised, thin ledge, passing round a whorl, or any other part of the shell, as Carinaria, fig. 488.

CARINEL'LA. Adanson. LUTRARIA compressa, Lam. LIGULA, Montf.

CAROCOL'LA. Lam. *Fam.* Colimacea, Lam. *Descr.* Orbicular, depressed, with the outer sides of the whorls angulated or keeled; whorls few; peritreme reflected; columella contiguous to the axis; epidermis thin. *Obs.* This genus, differing from Helix only in the whorls being angulated, is hardly distinct enough from the latter to justify the separation. In De Ferussac's system these species constitute the division Helicigona, of the genus Helix. C. Lamarckii, fig. 277.

CAR'TILAGE. See LIGAMENT.

CARY'CHIUM. Müll. *Fam.* Auriculacea, Bl. Colimacea, Lam. *Descr.* Oblong or cylindrical, with gradually increasing whorls, few in number; aperture straight, short, with a fold on the columella. *Obs.* This genus of minute land shells differs from Auricula chiefly in the soft parts. De Ferussac enumerates three species, C. Lineatum, C. Corticaria, (*Odostomia*, Flem.) and C. Minimum, fig. 301. De Blainville places it in his genus Auricula, as "species with two folds, and a posterior tooth on the columella," giving a figure of A. Mysotis as his example, and quoting the name Phitia, Gray.

CASSIDARIA. Lam. (From Cassis.) *Fam.* Purpurifera, Lam. Entomostomata, Bl. *Descr.* Oval, ventricose, spirally grooved and tuberculated, with a short turrited spire, and a large aperture, terminating anteriorly in a recurved canal; outer lip thickened, reflected, undulated or denticulated; inner lip expanded over a part of the body whorl and the columella, with part of its lower edge free. *Obs.* The recent species of this genus are not numerous; the few fossil species occur in the tertiary strata. C. Carinata is found in Calc-grossièr and London Clay. In general form this genus resembles CASSIS, but is at once distinguished by the canal, which does not turn abruptly over the back, but is slightly curved upwards. ONISCIA (C. Oniscus, &c. Lam.) is distinguished by the shortness of the

canal, and the granulated surface of the inner lip. Fig. 407. C. Echinophora.

CASSIDE'A. Sw. (From Cassis.) A genus composed of those species of Cassis, Auct. as have widened apertures, *Ex.* fig. 411. C. Glauca.

CASSIDULI'NA. D'Orb. A genus of microsopic Foraminifera.

CAS'SIS. (A helmet.) *Fam.* Purpurifera, Lam. Entomostomata, Bl. *Descr.* Oval, ventricose, thick, generally tuberculated, with a short varicose spire; aperture long, sometimes narrow, with the outer lip thickened and reflected, generally denticulated; the inner lip spread over the surface of the body whorl, incrassated and denticulated at its inner edge; canal turned suddenly over the back of the shell. *Hab.* Seas of tropical climates. The fossil species are rare, occurring in the tertiary strata. *Obs.* The large, common species of this well known genus are used as ornaments on chimney pieces, grottos, &c. and are remarkable for the triangular disc, presented by the inner lip, which is thickened and spread over the front of the body whorl, and the angulated outer lip; and as this thickening of the lip takes place at various stages of growth, the same triangular plane is observable at different parts of the spire. The smaller, more rounded species, which do not present this peculiarity and have widened apertures, have been separated by Swainson, under the generic name Cassidea. The C. rufa, coarctata, &c. have been proposed by Mr. S. Stutchbury as a new genus, under the name Cyprædassis, for reasons which will be stated at the word. Cassidaria is distinguished by the gradual curve of the canal. Fig. 410. Cassis tuberosa.

CASTA'LIA. Lam. *Fam.* Trigonées, Lam. *Descr.* Fluviatile, equivalve, inequilateral, trigonal, with corroded umbones; hinge with two lamellar, transversely striated teeth, one of which is posterior, remote from the umbones, short, divided, the other anterior, elongated; epidermis thick; internal surface pearly. Lamarck, in describing this shell, states, that he regards it as intermediate between Trigonia and Unio. It should, however, certainly have been placed in the family of "Nayades," and perhaps should form a part of the genus Unio itself. C. Ambigua, Lam. fig. 140.

CATIL'LUS. Brong. (A little dish.) Inoceramus, Sow.

CATOPHRAG'MUS. Sow. (From Κατω, *beneath*; φραγμος, *a place paled in.*) *Order*, Sessile Cirripedes, Lam. *Descr.* Eight principal valves, cemented side by side in a circle, eight smaller pointed valves beneath, covering the joints of the upper circle, and numerous still smaller valves forming the base of the shell; operculum, four valves. *Obs.* This is the only genus of Sessile Cirripedes consisting of eight principal valves, except Octomeris, which is destitute of the accessory pieces from which this genus derives its name. Fig. 23, C. Imbricatus.

CELLAN'THUS. Montf. Vorticialis, Bl. A genus of microscopic Foraminiferà.

CELLULAC'EA. Bl. Second order of Cephalophora, Bl. consisting of doubtful microscopic bodies, with a number of variously arranged cells, as distinguished from the true Polythalamia, Bl. or chambered shells.

CEMO'RIA Flemingii. Leach. A small patelliform shell, differing from Fissurella, in having the fissure placed behind the apex, which is produced, pointed and incurved. It is the Patella Fissurella, Müll. Patella Noachina, Chemn. F. Noachina, Sow. Puncturella, Lowe. Fig. 244, Cemoria Flemingii.

CEPHALOP'HORA. Bl. First class of Malacozoæ, Bl. Divided into: *Order*, 1. Cryptodibranchiata; 2. Cellulacea; 3. Polythalamacea. The first consisting of cuttle-fish, &c. which are destitute of shells; the second composed of those microscopic cellular bodies, which are regarded as shells by some authors; and the third containing the true chambered shells.

CEPHALO'PODA. Cephalopodes, Lam. (Κεφαλη, *cephale*, head; Ποδα, *poda*, foot.) The fourth order of the class Mollusca, Lam. containing molluscs, with a series of arms surrounding the head, which is placed above a sack-shaped body. This order is divided into Polythalamia, or many chambered shells; Monothalamia or single chambered Cephalopods and Sepiaria, or Cuttle-fish. Fig. 463 to 488.

CEPO'LIS. Montf. Belonging to the genus Helix, Auct.

CERI'THIUM. Auct. *Fam.* Canalifera, Lam. Entomostomata, Bl. *Descr.* Elongated, narrow, ribbed, tuberculated or rarely smooth, with a lengthened, turrited, pointed, pyramidal spire, consisting of numerous whorls; aperture sub-quadrate, terminated anteriorly, by a tortuous canal; outer lip thickened, sometimes reflected, expanded; inner lip thickened posteriorly; operculum, horny, spiral, with numerous whorls. *Obs.* The freshwater shells described as Cerithia by Lamarck, are separated under the name Potamis, and may be known by the thick, horny epidermis. Tristoma, Desh. has the posterior sinus and the canal closed, except at the extremities. Cerithium Telescopium does not appear to present the same characters as the other Cerithia, and has been separated by some writers under the generic name Telescopium. Cerithium Aluco, fig. 372.

CERVICOBRANCHIA'TA. Bl. The second order of Paracephalophora Hermaphrodita, Bl. containing symmetrical, patelliform shells, divided into the families Retifera and Branchifera.

CE'TOCIS. Montf. Placed by De Blainville in his section of Belemnites, characterized as having small folds at the apex. *Ex.* B. Penicillatus.

CETOPI'RUS. Ranz. Coronula Balænaris, Auct. fig. 16.

CHA'MA. Linn. *Fam.* Camacea, Lam. and Bl. *Descr.* Inæ-

quivalve, irregular, thick, foliaceous, attached by the umbo of the lower and larger valve. External ligament placed in a groove, following the involution of the umbones. Umbones spiral, coiled round on the back of the valves; hinge with a thick, crenated, lengthened tooth, in one valve, entering a corresponding cavity in the hinge lamina of the other; muscular impressions two in each valve, distant, lateral. *Obs.* Diceras may be known from Chama, by the spiral horns into which the umbones are produced; Isocardia, by the regularity of the shell; and it is hardly necessary to mention Spondylus, which may be known by the triangular disc between the umbones; Cleidothærus, Stutch. which resembles Chama in general form, has a separate bony appendage attached to the hinge, and may moreover be known by its elongated muscular impression. Fig. 153, C. Lazarus.

CHAMA'CEA. Bl. The seventh family of the order Lamellibranchiata, Bl. containing the genera Chama, Diceras, Etheria, Tridacna, Isocardia, Trigonia.

CHAMBERED. When the cavity of a shell is not continuous, but is divided by shelly diaphragms or septa, it is said to be chambered. This disposition is frequent in the Cephalopods and gives rise to the distinction of Polythalamia, but it is not confined to them as it occurs in some species of Chama, and in some vermicular shells and turrited univalves, &c.

CHA'RYBS. Montf. A genus of microsopic Foraminifera.

CHELONO'BIA. Leach. Coronula Testudinaria, Auct. Fig 15.

CHICO'REUS. Montf. A generic division of the genus Murex, consisting of such species as have three ramified varices. *Ex.* M. Inflatus, fig. 395.

CHILI'NA. Gray. *Fam.* Auriculacea, Bl. Colimacea, Lam. *Descr.* Oval, thin, covered with an olive green epidermis; spire rather short, consisting of few whorls; aperture large, oval, rounded anteriorly; outer lip thin, joining the inner lip without a sinus; inner lip spread over part of the body whorl, terminating in a thick columella with one or two folds. *Obs.* These shells differ from the true Auriculæ in the thinness of the outer lip. C. Dombeyana, (Auricula Dombeyana, Auct.) Fig. 300.

CHIMOTREMA. Montf. Belongs to Helix, Auct.

CHI'ONE. Megerle. Cytherœa Maculata, (fig. 117. c.) Sulcata, Circinata, &c. Auct. and other similar species,

CHISMOBRANCHIA'TA. Bl. Second order of first section of Paracephalophora Monoica, Bl. containing ear-shaped, partly internal, spiral univalves. *Gen.* Coriocella, Sigaretus, Cryptostoma, Oxinoe, Stomatella, and Velutina.

CHI'TON. Lam. (Χιτον, an integument.) *Fam.* Phyllidiana, Lam. *Class.* Polyplaxiphora, Bl. *Descr.* Oval, consisting of eight arcuated valves, arranged in a transverse series across the body of the animal, set in the skin, which forms a rim around

them, sometimes scaly, spinose or rugose, sometimes smooth. *Obs.* They are found attached to the rocks in all southern climate seas; but fossil species are almost unknown. Fig. 227. C. Spinosus.

CHITONEL'LUS. Lam. (From Chiton.) Separated by Lamarck from CHITON, on account of the valves being placed at a greater distance from each other. Fig. 228, C. Striatus.

CHRY'SOLUS. Montf. POLYSTOMELLA, Bl. A genus of microscopic Foraminifera.

CHRY'SOAR. Montf. Probably a species of ORTHOCERAS.

CHTHA'LAMUS. Ranz. *Fam.* Balanidea, Bl. *Order.* Sessile Cirripedes, Lam. *Descr.* Shell much depressed, valves six, thickened at the base, with prominent areas; operculum nearly horizontal, composed of four valves. *Obs.* This description would apply generically to the shell called Platylepas in the British Museum, only nothing is said about the prominent plates jutting from the internal surface of the valves. The difference between this genus and BALANUS consists principally in the horizontal position of the operculum and general flatness of the shell. C. Stellatus, fig. 18.

CIBI'CIDES. Montf. A genus of microscopic Foraminifera.

CIDAROL'LUS. Montf. A genus of microscopic Foraminifera.

CIM'BER. Montf. NAVICELLA, Auct.

CI'NERAS. Leach. (*Cinereus*, ash-coloured.) *Order.* Pedunculated Cirripedes, Lam. *Descr.* A testaceous mollusc, with a quadrilateral body, supported on a fleshy pedicle, with an opening in front of the upper part, for the protrusion of a bunch of ciliated tentacula. Immediately above this aperture is a pair of small elongated valves, placed in a nearly horizontal position; at the lower part is another tripartite pair placed perpendicularly, one on each side, and there is a narrow, angulated, keel-shaped piece placed at the back. *Obs.* The nearest approach to this genus is Otion. C. Vittatus, fig. 42.

CIN'GULA. Flem. RISSOA, Leach.

CIONEL'LA. Jeffreys. *Fam.* Colimacea, Bl. *Descr.* Oblong or elongated; last whorl large; apex rather acute, columella, sub-interrupted; aperture canaliculated, sub-effuse at the base; margins very unequal; no umbilicus. Bulinus Octonus, Lubricus, Acicula, &c. Auct. C. Lubrica, fig. 285.

CIR'CE. Schum. VENUS Castrensis, fig. 117 *d.* Sulcatina, Arabica, Pectinata, Auct. And other similar species.

CIRRI'PEDES. Lam. The tenth class of invertebrated animals, so named from the curled and ciliated branchia which protrude from the oval aperture of the shells. They are divided into SESSILE, i. e. attached by the basal portion of the shell, and PEDUNCULATED, i. e. supported upon a pedicle. Fig. 14 to 43.

CIRROBRANCHIA'TA. Bl. The first order of Paracephalophora Hermaphrodita, Bl. containing the genus Dentalium.

CIR'RUS. Sow. (*Cirrus*, a tendril.) *Fam.* Turbinacea, Bl. & Lam. *Descr.* Spiral, conical, with an hollow, funnel-shaped axis; whorls contiguous, numerous, rounded, or slightly angulated. *Obs.* This fossil genus resembles Trochus, from which it is known by the deep, funnel-shaped umbilicus. Fig. 349, C. nodosus.

CLAN'CULUS. Montf. TROCHUS *Pharaonis*, &c. Lam. *Obs.* This, with several other species, belong more properly to MONODONTA, Lam. Fig. 361.

CLA'THODON. Conrad. GNATHODON, Gray.

CLAUSI'LIA. Drap. (*Clausium*, a valve or folding door.) *Fam.* Colimacea, Lam. Limacinea, Bl. *Descr.* Spire elongated, consisting of many volutions; aperture small, subquadrate, having several tooth-shaped folds on the columella. A small, elastic, shelly plate attached to the columella within, called the Clausium, its office being to enclose the aperture when the animal has retired within its shell. *Obs.* This last character distinguishes it from the Pupæ, to some of which it bears a very near resemblance. *Hab.* Land, in the southern part of Europe, several British species. Fig. 295. Clausilia Macascarensis.

CLAU'SIUM. A name applied to the beautiful contrivance whence the genus Clausilia derives its name, consisting of a little bony tortuous plate, placed in a groove on the columella. Here it serves the purpose of a door, which, when not operated upon by counteracting pressure, springs forwards on its elastic ligament and encloses the animal in his retirement. When he wishes to make his exit, he pushes back the Clausium into the groove.

CLAVAGEL'LA. Lam. (*Clava*, a club.) *Fam.* Tubicolæ, Lam. Pyloridea, Bl. *Descr.* Two irregular, flattish valves; one fixed or soldered, so as to form a part of the side of an irregular shelly tube; the other free within the tube near the base. *Obs.* The shells composing this genus are found in stones, madrepores, &c. and appear to form the connecting link between Aspergillum, which has both valves cemented into the tube; and Fistulana, in which both are free. Fig. 45, a fossil Clavagella.

CLAVA'TULA. The generic name by which Lamarck originally distinguished those species of Pleurotoma which were remarkable for the shortness of their canal. In his system, however, they are re-united to Pleurotoma, fig. 381, P. Strombiformis.

CLA'VATE. When one extremity of the shell is attenuated and the other becomes suddenly ventricose or globular, it is said to be Clavate. *Ex.* Murex Haustellum, fig. 396.

CLAVULI'NA. D'Orb. A genus of microscopic Foraminifera.

CLEIDOTHÆ'RUS. Stutch. (*Θαιρος*, hinge; *Κλεὶς*, clavicle.) *Fam.* Chamacæ or Myariæ, Lam. *Descr.* Inequivalve, irregular, solid, attached; with one cardinal, conical tooth in the

free valve, entering a corresponding indenture in the other; and an oblong, shelly appendage fixed by an internal cartilage in a groove under the umbones. Muscular impressions, two in each valve, one elongated, the other uniform. *Obs.* This shell is like Chama in general form, but distinguished by the clavicle or shelly appendage from which its name is derived. Fig. 75.

CLEO'DORA. *Per. et Les. Fam.* Pteropoda, Lam. Thecosomata Bl. *Desc.* Thin, transparent, pyramidal; with flat, alate sides and oval aperture. Fig. 221. C. Cuspidata.

CLISI'PHONITES. Montf. Microscopic. LENTICULINA, Bl.

CLI'THON. Montf. NERITINA spinosa, &c. Auct. fig. 325.

CLI'TIA. Leach. *Fam.* Balanidea, Bl. *Order.* Sessile Cirripedes, Lam. *Descr.* Sub-conical, compressed, consisting of four unequal valves, two larger and two smaller, joined together side by side, by the interlocking of their dentated edges. Operculum consisting of two unequal, pointed valves. *Obs.* Clitia is known from Creusia, by the articulations of the valves, and by the operculum, which in Creusia consists of four valves. Fig. 20. C. Verruca, (Lepas Verruca, Gmelin.)

CLO'THO. Faujas. *Fam.* Conchacea. Bl. *Descr.* "Oval, subregular, longitudinally striated, equivalve, subequilateral; hinge consisting of a bifid tooth, curved as a crochet, larger in one valve than in the other." This description is translated from Blainville, who states that he has never seen the shell.

COBRE'SIA. Hübner. VITRINA, Auct.

COCH'LEATE. (*Cochleare*, a spoon.) Applied to any shell or part which is hollow and oval, as Patellæ, &c. The cavity containing the cartilage in Mya, fig. 71, is Cochleate.

COLIMA'CEA. (Colimacées, Lam.) A family belonging to the first section of the order TRACHELIPODA, Lam. containing the genera Helix, Carocolla, Anostoma, Helicina, Pupa, Clausilia, Bulinus, Achatina, Succinea, Auricula, and Cyclostoma. The numerous genera into which later authors have divided these, will be named in the explanation of fig. 264 to 307, as far as they have been considered of sufficient importance to be represented.

COLUMBEL'LA. (Columba, a dove.) *Fam.* Columellata Lam. *Descr.* Thick, oval or angular; with short spire and long, narrow aperture, contracted in the centre, and terminating in an anterior canal. Outer-lip thickened and dentated; inner-lip irregularly crenated. Epidermis thin, brown. Operculum very small, horny. *Obs.* Those species of Mitra, which resemble Columbella in shape, may be easily distinguished by the plaits on the Columella. The Columbellæ are marine, and few fossil species are known. Fig. 430, C. Mercatoria.

COLUMEL'LA. A solid column formed by the inner sides of the volutions of a spiral univalve. It is sometimes described as the inner-lip of the aperture, of which it forms a part; but the term

would be more properly confined to that portion of the inner-lip which is seen below the body whorl, over which the remainder of the inner-lip is frequently spread. In fig. 431, the anterior termination of the Columella is indicated by the letter *c*. The axis is an imaginary line drawn strictly through the centre of the whorls, whether their inner edges form a solid column or not.

COLUMELLA'TA. (Columellaires, Lam.) A family belonging to the second order of Trachelipoda, Lam, containing the genera Columbella, Mitra, Voluta, Marginella and Volvaria. To which may be added other genera enumerated in the explanation of figures 430 to 439.

COMPRES'SED. Pressed together, or flattened. Application the same as in common use. A Patella may be described as a vertically compressed cone. A Ranella, on account of the two rows of varices skirting the whorls, appears as it were laterally compressed.

CONCAMERA'TIONS. (*Con*, with; *camera*, chamber.) A series of chambers joining each other, as in Nautilus, Spirula, &c.

CONCEN'TRIC. A term applied to the direction taken by the lines of growth in spiral and other shells. Every fresh layer of shelly matter forms a new circle round an imaginary line drawn through the centre of the spiral cone, down from the nucleus. When the edges of the successive layers are marked by any external characters, the shell is said to be concentrically striated, banded, grooved, costated, &c. A fine illustration of the latter is to be seen in the Scalaria, or Wentletrap. Fig. 351.

CONCHA'CEA. Bl. The eighth family of the order Lammellibranchiata, Bl. The genera described in this family are divided into three sections, First, those which are regular and have distant lateral teeth, Cardium, Donax, Tellina, Lucina, Cyclas, Cyprina, Mactra, and Erycina. Second, Those which are regular, and have no distant lateral teeth, Crassatella, Venus. Third, Those which are irregular, Venerupis, Coralliophaga, Clotho, Corbula, Sphænia, Ungulina.

CONCHA'CEA. Lam. A family of Lamarck's order Conchifera Dimyaria, thus described: "Three cardinal teeth, at least on one valve, as many or fewer on the other, with lateral teeth sometimes. This family is divided into two groups, first, Con ques Fluviatiles, containing the genera Cyclas, Cyrena, Galathæa; second, Conques Marines, containing Cyprina, Cytherea, Venus, Venericardia, and others, enumerated in explanation of figures 111 to 121.

CONCHO'LEPAS. Lam. (*Concha*, a shell; *lepas*, a stone or rock.) *Fam.* Purpurifera, Lam. Entomostomata, Bl. *Descr.* Oval, imbricated, thick; with a very short spire and large oval patelliform aperture, terminating anteriorly in a slight emargi-

nation. Outer-lip crenated, with two produced points or teeth towards the anterior. Inner-lip, smooth, nearly flat, reflected over the last whorl, so as nearly or entirely to cover it, operculum horny. Marine, only one species known, from Peru. *Obs.* This shell is placed near Patella by Lamarck, on account of its large open aperture; but having an horny operculum and being in other respects like Purpura, it should be placed in the family of Purpuriferæ. Fig. 418, Concholepas Peruviana.

CONCHIFERA. Lam. The eleventh class of Invertebrata, consisting of all bivalve shells. Lamarck divides this class into two orders, viz. C. Dimyaria and C. Monomyaria. The former having two adductor muscles; the latter, one. The situation of these muscles is marked by impressions in both valves.

CONCHOTRYA. Gray. (Concha, a shell; Τρυο, *tryo*, to bore.) *Order.* Pedunculated Cirripedes, Lam. *Descr.* Five pieces, two pairs ventral, one single; shaped like Pentelasmis. Found in holes in shells.

CONE. A common name for shells of the genus Conus.

CONE. This mathematical term is used by conchologists in its utmost latitude of signification, to express a body, which in its formation, commences in a small point, called the apex, and increases in width towards the conclusion or base. It is applied to all shells, whether the increase in width from the apex be gradual or sudden; or whether in its growth it takes a straight, oblique, curved or spirally twisted course. In this sense the bivalves would be described as a pair of rapidly enlarging oblique, cones, and the aperture of every spiral shell would be its base. But this phraseology being in disuse, it is only mentioned here that it may be understood when it is occasionally met with.

CONIA. Leach. (From Conus?) *Fam.* Balanidea. *Order*, Sessile Cirripedes, Lam. *Descr.* Four rather irregular valves, of porous structure, placed side by side, so as to form a circular cone, supported at the base on a shelly plate, and closed at the aperture by an operculum, consisting of four valves, in pairs. Distinguished from Creusia by its porous structure and by its flat support; that of Creusia being cup-shaped. Fig. 21. Conia porosa.

CONICAL. Applied in the ordinary sense, and not as explained above under the word Cone.

CONILITES. Auct. *Fam.* Orthocerata, Lam. and Bl. *Descr.* Conical, straight or slightly curved; having a thin external covering, independent of the nut or alveole. Alveole transversely chambered, sub-separable, (translated from Lam.) *Obs.* The difference between Belemnites and Conilites, is that the external sheath of the latter is thin, and not filled up with solid matter, from the point of the alveole to the apex, as in the

former. De Bl. places in this genus the genera Thalamulus, Achelois and Antimomus, Montf. two of which are figured Knor. Sup. Fab. iv. f. 1. 1. 8. 9. Conilites Pyramidata. Fig. 470.

CONOHE'LIX. Sw. (Conus and Helix.) The generic name given to those species of Mitra which are conical in form. Fig. 432. C. marmorata.

CONOPLÆ'A. Say. *Order.* Sessile Cirripedes, Lam. A genus composed of Balani, attached to stems of Gorgonia, having their bases elongated. *Ex.* fig. 27. Balanus Galeatus.

CONO'VULUS. A genus proposed by Lam. to include the small, conical species of Auricula, which have the outer lip simple. This was afterwards abandoned by him. *Ex.* fig. 298. Auricula Coniformis.

CONTIN'UOUS. Carried on without interruption, as the siphon in Spirula; the varices in Ranella, fig. 394, which, occurring in a corresponding part of each whorl, form a continuous ridge.

CONULA'RIA. Miller. A genus of Orthocerata, described as conical, straight or nearly so, divided into chambers, by imperforate septa; aperture half closed; apex solid, obtuse; external surface finely striated. Resembling Orthoceras, but wanting the siphon. Fig. 469.

CO'NUS. Auct. (Κωνος, *a cone.*) *Fam.* Enroulées, Lam. Angyostomata, Bl. *Descr.* Conical, convolute, with a short spire; and narrow lengthened aperture, terminating in slight emargination at each extremity; outer lip thin; epidermis thin; operculum small, pointed, horny. *Obs.* This well known genus of shells is easily distinguished from any other, by its conical form, its smooth columella, its narrow aperture, and thin outer lip. The form of the spire varies from flat and even partially concave, to a regular pyramidal cone; and the upper edges of the whorls are rounded in some species, angulated in others, and in some are waved or coronated. We give figures of the principal forms, 459 to 462.

CON'VOLUTÆ. (Enroulées, Lam.) A family of the second section of the order Trachelipoda, Lam. containing the genera Ovulum, Cypræa, Terebellum, Ancillaria, Oliva, Conus, and others, enumerated in explanation of figures 440 to 462.

CONVOLUTE. (*Con*, together; and *volvo*, revolve.) Strictly applied to symmetrical shells, signifying that the volutions are made parallelly with each other in a horizontal direction, as Ammonites, &c.; but the term is also commonly used in describing such shells as Conus, in which, the direction of the whorls being scarcely oblique, the last whorl almost entirely covers the former. This is the case with all Lamarck's family of Enroulées. Fig. 440 to 462.

CORALLIOPHAGA. Bl. Cypricardia *Corralliophaga*, Lam. *Descr.* Oval, elongated, finely striated, from the apex to the base

cylindrical, equivalve, very inequilateral; umbones slightly raised and quite anterior; hinge nearly the same in both valves; two small cardinal teeth, one of which is bifid, placed before a kind of lamellar tooth, beneath a very slender external ligament; two small, rounded, distant, muscular impressions, united by a straight palleal impression, which is strongly sinuated posteriorly. *Obs.* This shell, which is found in the empty holes of dead Lithodomi, in some instances conforming its shape to its situation, differs from Cypricardia of Lam. principally in its cylindrical form. C. Carditoidea, fig. 92.

CORBI'CULA. Megerle. Cyrena, Lam.

COR'BIS. Lam. *(A basket.)* *Fam.* Nymphacea, Lam. *Descr.* Transverse, oval, thick, ventricose, equivalve, sub-equilateral, free, cancellated, with denticulated internal margins; hinge with two cardinal and two lateral teeth in each valve; of the latter, one near and one remote from the umbones; muscular impressions lunulate, two in each valve, united by an entire, unsinuated, palleal impression. *Obs.* This genus, of which only one recent species is known, resembles many species of Venus and Cytherea, in general form; but differs in having lateral teeth, and in the palleal impression, which in all the Veneres, &c. is sinuated. From Lucina it may be known, not only by its oval form, but also by the muscular impressions, which in Lucina are produced into an elongated point; it will also be distinguished from Tellina, by the want of a posterior fold in the valves, for which that genus is remarkable. C. Fimbriata, fig. 101, is an inhabitant of the Indian Ocean. Several fossil species are found in the recent formations, above the chalk, at Grignon and Granville.

COR'BULA. Lam. *(A little basket.)* *Fam.* Corbulacea, Lam. Conchacea, Bl. *Descr.* Inequivalve, sub-equilateral, transverse, gibbose, not gaping; cardinal tooth in each valve, conical, curved, prominent, inserting its extremity into a pit in the opposite hinge; cartilage attached to the tooth of the smaller valve, and the pit in the larger; muscular impressions two in each valve, distant, rather irregular; impression of the mantle posteriorly angulated. *Obs.* The shells composing this genus were placed in Mya by Linnæus, but differ from the true Myæ in having a sinus in the palleal impression, and a prominent ligamentiferous tooth in each valve, whereas the Myæ have but one. The Corbulæ are marine, some species inhabiting the British coasts. Fossil species occur abundantly in green sand, London clay, Crag, and corresponding formations. Fig. 89. C. Nucleus.

CORBULA'CEA. (Corbulées, Lam.) A family of the order Conchifera Dimyaria, Lam. containing the genera Corbula and Pandora, fig. 89, 90.

COR'DIFORM. (*Cor.* a heart.) Heart-shaped, applied generally to any shell which may be fancied to resemble a heart in shape, as Isocardia, fig. 126, and Cardium Dionæum, fig. 122.

COR'NEA. Megerle. CYCLAS, Lam.

COR'NEO-CALCA'REUS. A term used to express the mixture of horny and calcareous matter, which enters into the composition of some shells; Aplysia, for instance. It is also applied to those opercula which are horny on one side, and testaceous on the other, as that of Turbo.

COR'NEOUS. Horny. A species of Patella has the specific name corneus given to it, because its texture more nearly resembles that of a horn than that of a shell. The epidermis of freshwater shells is of a similar composition.

CO'RONATED. (*Corona*, crown.) Applied to shells when ornamented with a series of points, tubercles, &c. round the upper edges of their volutions. *Ex.* Conus Nocturnus, fig. 459.

CORON'ULA. (*Corona*, crown, dim.) *Order.* Sessile Cirripedes, Lam. *Fam.* Balanidea, Bl. *Descr.* Six radiated valves, articulated side by side, in a circle, forming a depressed cone; internal structure of the valves, porous or camerated, thickened at the base; aperture closed by four valves in pairs; imbedded horizontally in a cartilaginous substance. *Obs.* The shells composing this genus are found partly imbedded in the skin of whales, and the shell of tortoises, and are therefore destitute of the shelly bases which support the Balani and other Coronular Multivalves. C. Testudinaria, (CHELONOBIA, Leach,) fig. 15. C. Balænarum, (CETOPIRUS, Ranz,) fig. 16. C. Diadema, (DIADEMA, Ranz.) Fig. 17.

CORRO'DED. (*Corrodo*, eat away, consume.) The umbones, apices and other thick parts of shells are frequently worn away or consumed by the chemical action of the element in which they exist. As the thickest parts of some shells are the most subject to this operation, it appears to me to arise from the outer surface of the shell being less under the influence of the animal juices, than the inner surface, and therefore more exposed to the action of the circumambient element. This, however, cannot be the case with respect to the Nayades and some other fresh water shells; with these, corrosion does not take place until after the thick epidermis which covers them, becomes wounded by some means or other, and then the animal thickens its shell within as fast as it is corroded without.

COW'RY. A common name for shells of the genus Cypræa.

CRANIA. Retz. (Cranium, a skull.) *Fam.* Rudistes, Lam. *Order.* Palliobranchiata, Bl. *Descr.* Inequivalve, generally equilateral, irregular, subquadrate; upper valve patelliform, conical, with the umbo near the centre; lower valve attached by its outer surface. Muscular impressions four in each valve; two,

large, posterior, distant; two small, approximate, central. No hinge teeth; no ligament. *Obs.* This genus properly belongs to the Brachiopoda, Lam. It differs from Orbicula in the mode of attachment, which in the latter, is by a byssus passing through the lower valve, and not by the valve itself. Hipponyx has only two muscular impressions in each valve. Some specimens of this genus present in the muscular impressions, a curious resemblance to the facial portion of a human skull. Some species occur in the Mediterranean, and some in the British seas. Several fossil species are described. C. personata, fig. 197.

CRASSA'TED. (Crassus, thick.) Used to express a thickness in the substance of the shell. *Ex.* Glycimeris, fig. 67.

CRASSATEL'LA. (Crassus, thick.) *Fam.* Mactracea, Lam. Conchacea, Bl. *Descr.* equivalve, inequilateral, close, thick, rounded anteriorly, rostrated posteriorly, with denticulated margins, smooth or ribbed transversely. Hinge with a triangular pit containing the cartilage, two anterior cardinal teeth, and a posterior depression in one valve; one anterior tooth and a slight anterior marginal elevation, and a posterior elevation in the other valve. Muscular impressions distant, strongly marked. Palleal impression not sinuated. *Obs.* The few recent species known are marine, several being brought from the coasts of New Holland. Fossil species are found in Calcaire-grossiér and London clay. The Crassatellæ are known from the Veneres, &c. by the ligamentary pit in the hinge, and from Lutraria and Mactra by the thickness and closeness of the shell. Fig. 84, C. rostrata.

CRASSI'NA. Lam. Astar'te, Sow.

CRAS'SIPEDES. Lam. (*Crassus*, thick; *pes*, foot.) The first section of the order Conchifera Dimyaria, Lam. In this section, the foot of the animal is thick and the shell gapes considerably; is divided into the families Tubicolæ, Pholadidæ Solenidæ, and Myaria. Fig. 44 to 76.

CRENA'TED. (*Crena*, notch.) Applied to small notches, not sufficiently raised or defined, to be compared to teeth. As the hinge of Iridina, fig. 150.

* CRENA'TUTA. Lam. *Fam.* Malleacea, Lam. Margaritacea, Bl. *Descr.* Compressed, lamellated, irregular, subequivalve, inequilateral, oblique; umbones terminal; hinge linear, nearly straight, with a series of excavations, containing the cartilage. Muscular impression, oblong, indistinct. *Obs.* This genus is known from Perna, by the hinge which in the latter is composed of a series of regular, straight, ligamentary, grooves placed across it. Crenatula also has no passage for the byssus, as in Perna. C. Mityloides. Fig. 168.

CREPI'DULA. Lam. (*Crepidula*, little slipper.) *Fam.* Calyptracea, Lam. and Bl. *Descr.* Oval, irregular, patelliform; apex lateral, incurved or subspiral; external surface convex, smooth

* CRENATULA, see errata

ribbed, waved or covered with spines; interior concave, smooth, with a flattish septum reaching nearly half across the cavity. Epidermis light brown. *Obs.* The difference between this genus and Calyptræa is that in the latter, the septum is more free from the sides of the shell, so that, instead of forming a regular plâte covering half the aperture, it assumes a variety of shapes, and in some is cup-shaped, in others forked, and in others, forms a little angular shelf. Indeed the variations are so numerous, that I think it would be better to throw the two genera into one and then divide them into smaller groups. Fig. 239.

CREPIDULI'NA. Bl. CRISTELLARIA, Lam. Microscopic.

CRE'SEIS. Rang. *Fam.* Pteropoda, Lam. *Descr.* Thin, fragile, transparent, pyramidal, pointed; with a dorsal ridge produced into a point at the edge of the aperture. *Obs.* The species found in the Mediterranean, is named C. Spinifera, (fig. 222,) from its resemblance to a thorn.

CREU'SIA. Leach. (Creux, se. Fr. a cavity.) *Fam.* Balanidea, Bl. *Order*, Sessile Cirripedes, Lam. *Descr.* Four valves composing a compressed cone, supported on, and jointed to, a cup-shaped cavity formed in the madrepore, in which it resides. Aperture quadrilateral, closed by an operculum of four valves. *Obs.* This genus is distinguished from Pyrgoma, which is supported on the edges of a similar cup-shaped cavity, by the paries consisting of four valves, whereas in Pyrgoma it is composed of one single piece. Fig. 28, C. Gregaria.

CRICOSTOMA'TA. Bl. The second family of Asiphonibranchiati, Bl. containing the genera Pleurotomaria, Delphinula, Turritella, Proto, Scalaria, Vermetus, Siliquaria, Magilus, Valvata, Cyclostoma, Paludina.

CRIOCE'RATITES. A genus composed of species of AMMONITES with disconnected whorls. C. Duvallii, fig. 482.

CRI'OPUS. Poli. CRANIA, Auct.

CRISTA'CEA. Lam. The third family of Polythalamous Cephalopoda, Lam. containing the genera Renulina, Cristellaria and Orbiculina.

CRISTA'CEA. Bl. The third family of Polythalamia, Bl. containing the genera Crepidulina, (Cristellaria, Lam.) Oreas and Linthuris.

CRISTARI'A. Schum. DIPSAS Plicatus, Leach. Anodon Tuberculatus, Fer.

CRISTELLARIA. Lam. CREPIDULINA, Bl. *Fam.* Cristacea, Lam. *Descr.* Semidiscoidal, chambered; whorls contiguous, simple, enlarging progressively; spire excentric, sublateral; septa imperforate. Microscopic.

CRYPTELLA. Webb. TESTACELLUS *Ambiguus* of Ferussac. Published in Sowerby's Genera of Shells as PARMACELLA Calyculata. *Descr.* A small patelliform shell, with a very short papillary spire, and the aperture irregularly expanded. Fig. 256.

CRYPTODIBRANCHIATA. Bl. The first order of the class Cephalophora, Bl. containing genera of molluscous animals destitute of shells.

CRYPTOS'TOMA. Bl. Differs from Sigaretus, Lam. principally in the soft parts of the animal.

CUCUL'LÆA. Lam. (*Cuculus*, a hood.) *Fam.* Arcacea, Lam. *Descr.* Sub-quadrate, nearly equivalve, sub-equilateral, deep; hinge rectilinear; with a series of angular teeth, small near the umbones, larger and more oblique towards the extremities; umbones separated by a flat external area, on which the ligament is spread. Anterior muscular impression, produced into a sharp-edged plate or ledge, projecting from the side of the shell. Posterior muscular impression, flat and indistinct. *Obs.* This genus very much resembles Arca in general form, but differs in the oblique, lengthened character of the remote teeth, and in the singularly prominent edge of the muscular impressions. Fig. 133, C. Auriculifera.

CUCU'MIS. Klein. Marginel'la, Auct.

CUMIN'GIA. Sow. *Fam.* Mactracea, Lam. *Descr.* Equivalve, inequilateral, transverse, rounded anteriorly, sub-rostrated posteriorly. Hinge with a central, spoon-shaped cavity in each valve, containing the cartilage, a very small anterior cardinal tooth in each valve, two lateral teeth in one valve, none in the other. Muscular impressions two in each valve, distant; palleal impression with a very large posterior sinus. *Obs.* The species known at present are found in sand, in the fissures of rocks of tropical climates. They are like Erycina in general form and character, but differ in the dissimilarity of the hinge in the two valves. This genus should be placed near Amphidesma. Fig. 87. C. mutica.

CU'NEIFORM. (*Cuneus*, a wedge.) Wedge-shaped, as Donax, fig. 108.

CU'NEUS. Megerle. Venus Meroe, Linn. and similar species.

CUR'VULA. Rafinesque. A fossil imperfectly described as differing from Pinna, in being inequivalve.

CUTEL'LUS. Species of Lutraria, Lam. which have the umbones placed near the extremity of the shell. *Ex.* L. Solenoides, fig. 78.

CUVIE'RIA. Ranz. (Baron Cuvier.) *Class.* Pteropoda, Lam. *Descr.* Thin, transparent, glassy, cylindrical, rounded and inflated at the closed extremity, compressed towards the opening, so as to render it oval. This genus differs from Vaginula in being rounded, instead of pointed, at the lower extremity. Fig. 223, C. Columella.

CY'CLAS. Brug. *Fam.* Conques Fluviatiles, Lam. Conchacea, Bl. *Descr.* Orbicular, thin, subovate, ventricose, sub-equilateral, equivalve; cardinal teeth minute, one more or less complex in the left valve, two diverging in the right; lateral teeth,

elongated, compressed, laminar, acute, doubled in the left valve, ligament external; epidermis thin, horny. *Obs.* The Cyclades are viviparous, and abound in ditches, ponds, slow streams, &c. in Europe and North America. The genus Pisidium has been separated on account of a difference in the animal, and may be known from Cyclas, by being less equilateral, and the anterior side being the widest. Fig. 111, C. Rivicola.

CYCLOBRANCHIA'TA. Bl. Third order of the second section of Paracephalophora Monoica, Bl. containing no genera of Testaceous Mollusca.

CYCLOPHOR'US. Montf. Generic name proposed for those species of Cyclostoma, Auct. which have an umbilicus. C. Involvulus, fig. 304, would be the type of this genus.

CY'CLOPS. Montf. Nassa Neritoidea, Auct. fig. 424.

CYCLOS'TOMA. Lam. (Κύκλος, *cyclos*, round; Στομα, *stoma*, mouth.) *Fam.* Colimacea, Lam. Cricostomata, Bl. *Descr.* Turbinated, globose, or oval, with an obtuse apex; rounded whorls and circular aperture, more or less angulated towards the spire; peritreme uninterrupted, thickened and reflected; operculum horny, spiral. *Obs.* All the Cyclostomata are land shells, mostly of tropical climates, but there are two or three European species. Fig. 303. C. ferrugineum; fig. 304, C. Involvulus.

CY'LINDER. Montf. Conus Textile, Auct. fig. 461, and other species having a cylindrical form.

CYLINDRICAL. (Κυλινδρον, *cylindron*, a cylinder.) This, like other mathematical terms, is used with great latitude by conchologists, and applied to any shell the body of which is somewhat straight, with the ends either rounded, flat or conical. *Ex.* Oliva, fig. 457.

CYL'LENE. Gray. *Fam.* Columellaires? Lam. *Descr.* Oval, thick, with a short acute spire; an oval aperture terminating anteriorly in a slight emargination, posteriorly in a short canal; a fold at the lower end of the body whorl; inner lip smooth, spread over part of the body whorl; outer lip thick, striated within; angle of the whorls tuberculated. *Obs.* This genus of small marine shells resembles Voluta in general character, but differs in having a smooth columella without folds. Fig. 425.

CYMBA. Brod. (*Cymba*, a boat or skiff.) *Fam.* Columellaria, Lam. *Descr.* Smooth, ventricose, with a very short, mammillated, rude spire; and a very large, wide aperture, terminated anteriorly in a deep emargination; posteriorly in a flat ledge, which separates the outer lip from the body whorl; columella with three or four oblique, laminar, projecting folds, terminating in a point; outer lip thin, with its spiral edge sharp; epidermis smooth, brown, covered partly or entirely by the glassy enamel,

which, commencing with the outer lip, spreads over the body of the shell. *Obs.* These very elegant shells, found in Africa, are distinguished from the true Volutes by the shapeless, mammillated apex of the short spire, by the large size of the aperture, and by the horizontal ledge which separates the outer lip from the body whorl. The genus Melo, also separated by Mr. Broderip from the Volutes, agrees with Cymba in some respects, but differs in the regularity of the spire. Fig. 434, C. Porcina.

CYMBIO'LA. Sw. The generic name of a group of Volutes, described as "armed with spinous tubercles, sometimes smooth, but never ribbed; spiral whorls gradually diminishing in size, but not distorted; apex thick and obtuse; pillar with four plaits." Mr. Swainson remarks that this genus is chiefly distinguished by the obtuse, but not irregular spire. The typical species are stated to be V. Rutila, and V. Vespertilio, fig. 433.

CYMBU'LIA. (*Dim*, from Cymba.) *Fam.* Pteropoda, Lam. An extremely light, cartilaginous external covering of a molluscous animal, so named from its similarity in shape to a boat. We mention it here because it is reckoned among the shells of the Mediterranean.

CY'PRÆA. Auct. *Fam.* Enroulées, Lam. Angyostomata, Bl. *Descr.* Oval, or oblong, ventricose, convolute, covered by enamel, generally smooth, shiny. Spire short nearly hid. Aperture, long, narrow, terminating in a short canal at both extremities. Outer-lip dentated, thickened, inflected. Inner-lip dentated, thickened, reflected over part of the body whorl. *Obs.* These shells are so distinguished by the two rows of teeth arranged on each side of the aperture; the thickened front, formed by the inner and outer lips; and the enamel deposited over the back of the shell from the mantle of the animal which envelopes it, that there is no danger of confounding them with any other genus, except in a young state. Before they have arrived at the full growth, the front is not thickened, and the outer-lip is thin, not inflected, nor are the teeth formed. In this state the shell resembles, in some degree, an Oliva. Some species are striated, ribbed, or tuberculated, but the generality are smooth. Most species belong to tropical climates, only one to Great Britain. The C. Moneta is current as money in some parts of Africa, and many species are worn as ornaments by the South Sea Islanders. The colouring in most species is exceedingly rich, and arranged in every variety of spots, patches, rings, lines, bands and clouds. The species most esteemed by collectors are the C. Mappa, C. Testudinaria, C. Pustulata, C. Aurora, C. Princeps, of which only two specimens are known, C. Leucodon, &c. See also Cypræovula, Trivia, and Luponia. The fossil species are principally from the Calc-grossièr, the London clay, Crag, &c. Fig. 445, to 450.

CYPRÆCAS'SIS. Stutch. (Cypræa and Cassis.) *Descr.* Shell, when young, striated, reticulated or tuberculated; outer-lip simple: when mature, outer-lip involute and toothed; columellar lip also toothed; aperture straight, anteriorly terminated by a recurved canal, posteriorly by a shallow channel. Animal with the mantle bilobed; operculum none. *Obs.* The reasons given for separating this genus from Cassis, are, 1st, That the shells of the latter have an operculum, while those of the proposed genus has none. 2nd, That the Cypræcassides do not form a complete, thickened lip, before the full period of their growth, like the Cassides. 3rd, That the Cypræcassides have no epidermis. The species mentioned as probably belonging to Cyprecassis are C. rufa, the type; C. Coarctata, and C. Testiculus, Auct. The establishment of this genus has been opposed on the ground that indications of epidermis are discoverable in some specimens of C. rufa; that some specimens of the same species and Testiculus have been examined, and found to have formed slightly thickened and denticulated outer-lips at very early periods of growth, while many of the other Cassides are destitute of varices, and that an operculum of C. coarctata was brought to this country by Mr. Cuming. It is probable, however, that an increased knowledge of facts might go far to establish the propriety of the separation. C. Testiculus, fig. 412.

CYPRÆO'VULA. A genus of Cypræidæ thus described: "Shell like cowry, but front end of columella covered with regular cross-ribs, like rest of base, internally produced into an acute toothed ridge. Shell pear-shaped, cross-ribbed." C. Capensis.

CYPRICAR'DIA. Lam. *Fam.* Cardiacea, Lam. *Descr.* Equivalve, inequilateral, sub-quadrate, transversely elongated, with the anterior side very short. Hinge with three cardinal teeth and one posterior, elongated, remote lateral tooth in each valve. Muscular impressions two in each valve; ligament external. *Obs.* This genus is distinguished from Cardita by the three cardinal teeth. Cypricardia is Marine. Fig. 125, C. Angulata.

CYPRI'NA. Lam. *Fam.* Conques Marines, Lam. Conchacea, Bl. *Descr.* equivalve, inequilateral, sub-orbicular; umbones curved obliquely; hinge with three diverging cardinal and one remote lateral tooth in each valve. Ligament external. Muscular impressions two in eace valve; palleal impression having a slight posterior sinus. Epidermis thick, rough, brown. *Obs.* The Cyprinæ belong to the Northern hemisphere. The recent species are not numerous. Fossil species are found in the tertiary deposits. Cyprina may be known from Venus by the remote lateral tooth and the thick epidermis. Fig. 116, C. vulgaris.

CYRE'NA. *Fam.* Conques Fluviatiles, Lam. Conchacea, Bl.

Descr. Sub-orbicular, equivalve, inequilateral, ventricose, corroded at the umbones, thick, covered with a thick epidermis; hinge with three cardinal and two remote lateral teeth in each valve. Muscular impressions two in each valve; palleal impression not sinuated. *Obs.* This genus is distinguished from Venus, Cytherea and Cyprina by having two remote lateral teeth; and from Cyclas by the thickness of the shell. Fig. 113, C. fuscata.

CYRENOI'DES. Joannis. CYRENELLA, Deshayes. *Fam.* Conques Fluviatiles, Lam. *Descr.* Equivalve, sub-equilateral, ventricose, thin, covered with a reddish brown epidermis, corroded at the umbones; with a slight posterior fold. Hinge thin, with three diverging cardinal teeth in each valve, and a very slight posterior fold in the right valve. Ligament not very tumid. *Obs.* This fresh-water shell differs from Cyclas and Cyrena in the want of lateral teeth, and from the latter in the thinness of the shell. Fig. 114.

CYR'TIA. Dalman. (Κυρτος, *curtos*, gibbose.) *Fam.* Brachiopoda, Lam. *Descr.* "Hinge rectilinear; with the back elevated into a semicone or half-pyramid, the cardinal side perpendicularly *plane*." *Obs.* This genus of fossil Brachiopoda forms part of the genus Spirifer, Sow. C. exporrecta, (Anomites, exporrecta, Nonnul,) fig. 204.

CYTHERÆ'A. Lam. *Fam.* Conques Marines. Lam. *Descr.* Equivalve, inequilateral, oval, lenticular or sub-trigonal; hinge with two or more short diverging cardinal teeth, and one anterior approximate lateral tooth in each valve. *Obs.* The Cythereæ are distinguished from the Veneres by the lateral tooth. C. Meretrix, fig. 117, and 117, a. b. c. d.

DECA'CERA. Bl. The second family of the order Cryptodibranchiata, containing the genera Calmar and Sepia, which have no shells.

DECATOPEC'TEN. Rüppell. PECTEN *Plica*, Linn. Fig. 172.

DECI'DUOUS. (*De-cado*, fall down.) A shell is described as deciduous when there is a tendency in the apex of the spire to fall off, as in Bulimus decollatus, fig. 289.

DECOL'LATED. (*Decollari*, to be beheaded,) The apex or nucleus of some shells is composed of a transparent, glassy substance, much more fragile than the rest; and this part being deserted by the animal, which lives in the lower whorls, it is exposed to accident and the decomposing power of water. When this part of the shell consequently falls off, it is said to be decollated. *Ex.* Bulinus decollatus, fig. 289.

DELPHIN'ULA. Lam. (*Delphinus*, a dolphin.) *Fam.* Scalariens, Lam. Cricostomata, Bl. *Descr.* Turbinated, orbicular, depressed, thick, rugose; whorls few, angulated, branched at the angles; aperture pearly, rounded or sub-quadrate; peritreme

continuous, thickened; operculum horny, composed of numerous whorls. *Obs.* Recent species of this genus are not very numerous. The fossil species are found in the tertiary deposits. D. laciniata, fig. 352.

DELTHY'RIS. Dalman. *Fam.* Brachiopoda, Lam. *Descr.* Hinge more or less rounded, with distant umbones, both valves convex; with the umbo of the largest rostrated and deltoid, with a hollow. This genus forms part of Spirifer, Sow. Fig. 205, D. Plycotes, Dalman.

DEL'TOID. (Δ, *delta.*) Triangular.

DENDOS'TRÆA. Sw. (Δενδρον, *dendron*, tree; οστρεον, *ostreon*, oyster.) Ostræa *Crista-galli*, and other species which are attached to stems of seaweed and corallines, by means of arms thrown out from the outer surface of the lower valve. Fig. 181, Ostræa Folium.

DENTA'LIUM. Lam. (*Dens*, a tooth.) *Fam.* Maldania, Lam. *Order.* Cirrobranchiata, Bl. *Descr.* Tubular, arched, increasing in size towards the anterior extremity, open at both ends; small aperture, sometimes having a lateral fissure; large aperture, round; external surface ribbed, striated or smooth. *Obs.* The well-known shells composing this genus are shaped very much like an elephant's tusk, and are not liable to be confounded with any other genus. The fossil species are sometimes termed Dentalithes from *dens*, a tooth, and *lithos*, a stone. The Dentalia, being true molluscs, are not rightly placed among the Annelides. Fig. 2, D. octogonum.

DEX'TRAL Spiral Shells. Place the point of a spiral shell towards the eye, with its mouth downwards; if the aperture be on the right side of the axis, it is a *dextral* shell; if otherwise, it is *sinistral* or *reversed.*

DEXTRAL Valve. Place the bivalve shell with the posterior side (or that on which the ligament is placed) towards the eye, with the umbones uppermost; the valves will then be in their right position with regard to right and left.

DIADE'MA. Ranz. Coronula Diadema, Auct fig. 17.

DIAN'CHORA. Sow. *Fam.* Pectinides, Lam. *Order.* Palliobranchiata, Bl. *Descr.* Inequivalve, attached, oblique, sub-triangular; attached valve having an opening in the place of the umbo; the other valve auriculated, with an obtuse umbo; hinge without teeth. *Obs.* The green sand fossils contained in this genus differ from Plagiostoma, in being attached. Fig. 175, D. striata.

DIA'PHANOUS. (Δια, *dia*, through; φαινω, *phaino*, to shine.) Transparent.

DI'APHRAGM. (διαφραγμε, *diaphragma*, a partition.) This term is applied to the septa, by which the chambers of multilocular and other shells are divided from each other.

DI'CERAS. Lam. (Δις, *dis*, double; Κερας, *ceras*, horn.) *Fam.* Chamacea, Bl. and Lam. *Descr.* Inequilateral, inequivalve, attached by the point of the umbo of the larger valve; umbones prominent, spirally twisted and grooved; hinge with one large thick tooth, in the larger valve; muscular impressions two in each valve. *Obs.* The prominent spiral umbones, which give rise to the name of this genus, with the circumstance of its being attached by the point of one of them, is sufficient to distinguish it from any other, although it appears to approach Isocardia in some characters. The singular fossil shells composing this genus are found in granular limestone, near Geneva and in Normandy, Fig. 154. D. perversum.

DIDON'TA. Schum. Saxicava, Auct.

DI'GITATED. (*Digitus*, finger.) Branched out in long points, as Ricinula, fig. 413.

DIMORPHI'NA. D'Orb. A genus of microscopic Foraminifera.

DIMYA'RIA. (Δις, *dis*, double; μυον, *myon*, muscle.) The first order of Conchifera, Lam. including those molluscs which have two adductor muscles. The Conchifera Dimyaria are divided into Crassipedes, Tenuipedes, Lammellipedes, and Ambiguæ. Fig. 44 to 155.

DIO'ICA. Bl. The first division of the class Paracephalophora, Bl. Divided into the orders Siphonobranchiata and Asiphonibranchiata, Bl.

DI'PLODON. Spix. Hyria Syrmatophora, Lam. fig. 144, and Unio multistriatus, Lea, are doubtfully quoted by Lea as belonging to this apparently ill defined genus of Nayades.

DIP'SAS. Leach. A genus or sub-genus of Nayades, the distinctive character of which, is "having a linear tooth under the dorsal edge." D. plicatus, fig. 142.

DISCI'NA. Lam. Orbicula, Auct.

DISCOI'DAL. (*Discus*, a circular plane.) A spiral shell is said to be Discoidal, when the whorls are so horizontally convolute as to form a flattened spire. *Ex.* Planorbis, fig. 311. Orbulites Discus, fig. 479.*

DIS'COLITES. Montf. A genus of microscopic Foraminifera.

DISCONTIN'UOUS. (Interrupted.) *Ex.* The siphon of Nautilus is discontinuous, i. e. its termination in one chamber does not reach to its commencement in the next. The varices of Triton, occurring in different parts of the whorls, do not form the continuous ridges which characterize the Ranellæ.

DISCORBI'TES. Lam. A genus of microscopic Foraminifera.

DISTANT. The teeth on the hinge of a bivalve shell are said to distant when they are remote from the umbones.

DOLABEL'LA. Lam. (Dim. from *Dolabra*, a hatchet.) *Fam.* Aplysiacea, Lam. and Bl. *Descr.* Hatchet-shaped, arcuate, covered with a horny epidermis; posteriorly narrowed, thick-

ened, sub-spiral, anteriorly plane, broad, thin; posterior margin reflected. *Obs.* The two or three species of Dolabella known are inhabitants of the Indian ocean. They were placed by Linneus in his very convenient genus Bulla, under the name B. dubia. Fig. 255, Dolabella Rumphii.

DO'LIUM. Lam. *(A tun.)* *Fam.* Purpurifera, Lam. Entomostomata, Bl. *Descr.* Thin, ventricose, oval or globular, with a short spire, large aperture terminating in a reflected canal, and spirally ribbed or grooved external surface; outer lip crenated; inner lip reflected over part of the body whorl, which terminates in a tumid varix; epidermis light, horny. *Obs.* This genus is distinguished from Cassis, by the outer lip, which is not reflected. The species which are not so rotund as the others, *Ex.* D.Perdix, Auct. have been separated under the name PERDIX, as generic. Fig. 420. Dolium Maculatum.

DO'NAX. Linn. *(A wedge.)* *Fam.* Nymphacea, Lam. Conchacea, Bl. *Descr.* Equivalve, inequilateral, trigonal, with the anterior side short, straight, plane; the posterior side elongated, drawn to a narrow, rounded termination; hinge with two cardinal teeth in one valve, one in the other, and one or two, more or less remote, lateral teeth; ligament external; muscular impressions two in each valve; palleal impression sinuated posteriorly. *Obs.* The Capsæ have not the crenated margins, the short anterior side, and the distinct lateral teeth, which characterize the Donaces. Some species of Erycina resemble Donax in general form, but are at once distinguished by the ligamentary pit in the hinge. Fig. 108, D. cuneatus.

DOR'SAL Shell. Is one placed upon the back of the animal. The dorsal part of a bivalve shell is that on which the hinge is placed, the opposite margins are termed ventral. The dorsal surface of a spiral univalve, is that which is seen when the aperture is turned from the observer. The dorsal valve is the uppermost in Brachiopodous bivalves.

DORSA'LIA. Lam. *(Dorsum*, the back.) The first family of the order Annelides Sedentaria, Lam. containing Gen. Arenicola, not a shell; and Siliquaria, fig. 1.

DOSI'NA. Schum. VENUS Verrucosa, Cassina, and similar species. Fig. 119, a.

DREISSI'NA. MYTILUS *Polymorphus*, Auct. Fig. 159.

EBUR'NA. Lam. *(Eburnus*, ivory.) *Fam.* Purpurifera, Lam. Entomostomata, Bl. *Descr.* Oval, thick, smooth, turrited, umbilicated; spire angulated, acute, nearly as long as the aperture; aperture oval, terminating anteriorly in a canal, posteriorly in a groove; outer lip slightly thickened with an anterior notch, which terminates a spiral fold surrounding the body whorl; umbilicus generally covered by the thickened columellar lip. *Obs.* The beautiful shells called Ivory Shells, which originally constituted part of this genus, are now placed in the genus

Ancillaria, by authors. They differ from the present genus Eburna in having the sutures of the spire covered with a polished enamel, A. glabrata, fig. 455. The Eburnæ resemble the Buccina in some respects, but a glance at the figure will enable the reader to distinguish a true Eburna from all other shells. Fig. 426, Eburna Zeylanica.

E'GEON. Montf. A genus of microscopic Foraminifera.

EGERIA. Lea. (Contrib. to Geol. p. 49. pl. 1.) A genus of fossil bivalves, described as very variable in form, with or without lateral teeth, sometimes a crenated margin, &c. The only certain characters appear to be that they have two diverging cardinal teeth in each valve, one of which is bifid, and an external ligament. Lea states that the Egeriæ should be placed between Sanguinolaria and Psammobia, which two latter genera have been united by Sowerby. Fig. 103, E. Triangulata, from the tertiary formation of Alabama.

ELLIPSOLITHES. Montf. (Ελλειψις, *ellipsis*, oval; λιθος, *lithos*, stone.) A genus composed of Ammonites, which instead of being regularly orbicular, take an elliptical or oval form.

ELLIPSOSTOMATA. Bl. (Ελλειψις, *ellipsis*; στωμα, *mouth.*) The third family of the class Asiphonibranchiata, Bl. containing the genera Rissoa, Phasianella, Ampullaria, Helicina, and Pleurocera.

ELLIPTICAL. (Ελλειψις, *ellipsis.*) Expresses the form of the plane produced by an oblique section of a cone, i. e. *oval.* Applied to any shell, or part of a shell, having that form.

ELMINEUS. Leach. *Order.* Sessile Cirripedes, Lam. *Descr.* Four unequal valves, arranged circularly side by side, forming a quadrate cone; aperture large, sub-quadrate, irregular; operculum, composed of four valves in pairs. *Obs.* This genus differs from Conia in the structure of the shell, the latter being porous. Fig. 22, Elmineus Leachii.

ELPHIDIUM. Montf. A genus of microscopic Foraminifera.

EMARGINATED. (*e*, out; *margo*, edge or border.) Notched or hollowed out. Applied to the edges or margins of shells, when instead of being level they are hollowed out, as the outer lip of Oliva, fig. 457, at the base, and the ventral margins of some bivalves.

EMARGINULA. Lam. (*e*, out; *margo*, border.) *Fam.* Calyptraciens, Lam. Branchifera, Bl. *Descr.* Patelliform, oblong or oval; anterior margin, notched or emarginated; apex posteriorly inclined; muscular impression wide. *Obs.* Parmophorus Bl. fig. 242, E. Elongata, Auct. is commonly called the Duck's Bill Limpet, from its singular resemblance to that organ. The Emarginulæ may be known from Patellæ and other neighbouring genera, by the notch or slit in the anterior edge. In Rimula, Def. fig. 243, this slit is near the apex, and does not

reach the border. Recent species occur in seas of all climates, but are not numerous. Fossil species are still more rare, ocurring in the Calc-grossièr, Crag and Oolite. E. fissurata, fig. 241.

ENDOSI'PHONITES. A genus composed of Ammonites, having the siphon close to the body whorls.

ENDOTO'MA. Rafinesque. A genus of microscopic Foraminifera.

ENROUL'EES. Lam. See CONVOLUTÆ.

EN SIS. Schum. SOLEN Ensis, Auct. fig. 60, and other sword-shaped species.

ENTA'LIS. Defr. DENTALIUM duplicatum, Bl. PHARETRIUM, Konig?

EN'TELLITES. Fischer. A genus composed of species of TEREBRATULA, SPIRIFER and PRODUCTUS, Auct. having the hinge large and the umbones short. ORTHIS? Dalman.

ENTIRE. (Integra.) Not interrupted, not emarginated. The peritreme of a univalve shell is said to be entire when it is not interrupted by canals or by the body whorl. *Ex.* Cyclostoma, fig. 304. The palleal impression is entire, when continued without interruption, or without a sinus.

ENTOMOSTOM'ATA. Bl. The second family of the order Siphonobranchiata, Bl. containing the genera Subula, Cerithium, Melanopsis, Planaxis, Terebra, Eburna, Buccinum, Harpa, Dolium, Cassidaria, Cassis, Ricinula, Cancellaria, Purpura, Concholepas.

EO'LIDES. Montf. A genus of microscopic Foraminifera.

EPIDER'MIS. (Επι, *epi*, over or upon; δερμα, *derma*, skin.) The fibrous, horny, external, coating of shells, called by the French "*Drap marin*," or marine cloth. Lamarck objects to the name Epidermis because he does not consider the substance as answering to the cuticle or scarf skin of the human body, but more analagous to the nails and hair. Gray calls it the PERIOSTRACUM, from the membranous skin covering the bones of quadrupeds.

EPIPHRAGM. The membranaceus or calcareous substance by which some species of molluscs close the aperture of the shell when they retire within them to hibernate. When the animal wishes to come forth from his hiding place, again to breath the air, the edges of the Epiphragm are detached by a chemical process, so that it drops off. The name Hibernaculum has also been applied to this covering.

EPO'NIDES. Montf. A genus of microscopic Foraminifera.

EQUILA'TERAL. (*Æquus*, equal; *latus*, side.) Equal-sided. Applied to bivalve shells, when a line drawn perpendicularly from the apex would divide the shell into two equal parts. *Ex.* Pectunculus Pilosus, fig. 134.

E'QUIVALVE. (*Æquus*, equal; *valva*, valve.) Applied to a shell when the two valves are alike in depth, width, length, &c.

ERA'TO. Risso. *Fam.* Convolutæ, Lam. *Descr.* Ovate, more or less angulated, smooth or granulated; with a dorsal scar, short spire, and large, angulated, emarginated aperture. Columella slightly crenated; outer lip reflected, denticulated on the inner edge. Suture of the whorls covered with enamel. *Obs.* This genus of small shells resembles Marginella, but has no folds on the columella. Having a scar or groove down the back, it is considered intermediate between Marginella and Cypræa. Fig. 454, E. Maugeriæ.

ERVI'LIA. Turt. E. Nitens. Mya *Nitens.* Montf.

ERYCI'NA. Lam. *Fam.* Mactracea, Lam. Conchacea, Bl. Ovate or triangular, transverse, equivalve, inequilateral, smooth; hinge with a ligamentary pit, two diverging cardinal and two lateral teeth in each valve; muscular impressions two in each valve; palleal impression sinuated. *Obs.* This genus is distinguished from *Mactra* and *Lutraria*, by the cardinal teeth being placed one on each side of the ligamentiferous pit; whereas in the last named genera they are both placed on the anterior side. Fig. 86, E. Plebeja.

ERYTHRÆ'A. The ancient name for Cypræa.

ESCUT'CHEON. The impression on the posterior dorsal margin of some bivalve shells. That on the anterior dorsal margin is called the lunule. The Escutcheon is indicated by the letter *e* in some of the Cythereæ, fig. 117, a. b. c.

ETHE'RIA. Lam. (*Æther*, air.) *Fam.* Camacea, Lam. and Bl. *Descr.* Irregular, inequivalve, inequilateral, foliaceous, pearly within, covered by an olive green epidermis without; hinge callous, undulated, destitute of teeth; ligament partly external, partly internal; passing through the hinge on a somewhat raised, callous area in the lower valve. Muscular impressions elongated, two in each valve, united by a slender palleal impression. *Obs.* The irregular, unequal, air-bubbles of the inner surface, whence this genus derives its name, are very brilliant in some species, and atone in some measure for the rugged ugliness of the exterior. In its irregular form, foliated structure, and toothless hinge, it resembles Ostræa, from which it differs in having two muscular impressions. Fig. 155, E. semilunata.

EU'LIMA. ——? *Fam.* Scalariens, Lam. *Descr.* Elongated, smooth, pyramidal; spire long, composed of numerous angulated whorls; apex acute, slightly tortuous; aperture oval, rounded anteriorly, acute at the posterior union with the body whorl; outer lip slightly thickened; columella smooth. Fig. 347, E. labiosa. Fig. 348, E. splendidula.

EUOM'PHALUS. Sow. *Fam.* Scalariens, Lam. *Descr.* Orbicular, conical; spire short, with three or four volutions, imbricated above, smooth below; aperture of a round polygonal form; umbilicus large, penetrating to the apex of the shell. *Obs.*

This genus of fossils very nearly resembles Delphinula. The main difference appears to be that the whorls do not increase so rapidly in size in the former as in the latter. Fig. 350.

EXOGŸ'RA. Sow. A genus of fossil bivalves, resembling Chama in shape and Ostræa in structure. Fig. 183.

EXTER'NAL. An external shell is one which contains the animal, and is not covered by the mantle.

FASCIOLA'RIA. Lam. *Fam.* Canalifera, Lam. Siphonostomata, Bl. *Descr.* Elongated, fusiform, ventricose; spire conical, consisting of few, rounded or angulated whorls; aperture wide, terminating in a long, straight, open canal; columellar lip with several oblique folds, the lower of which is larger than the rest; operculum horny, pyriform. *Obs.* This genus is known from Fusus by the folds on the columella; from Turbinellus, by their obliquity. Fig. 386, F. Trapezium.

FAU'NUS. Montf. MELANOPSIS, Fer.

FERUSSI'NA. Grateloup. STROPHOSTOMA. Deshayes.

FI'BROUS. A shell is said to be of a fibrous structure when a fracture would present a series of perpendicular fibres, as Pinna.

FI'CULA. Sw. A generic group of shells, consisting of those species of PYRULA, Auct. which have the true pear-shaped character. Fig. 390, P. Ficus. Sowerby confines the name PYRULA to these species.

FIM'BRIA. Megerle. CORBIS *Fimbriata*, Lam.

FISSUREL'LA. Brug. (*Fissura*, a fissure.) *Fam.* Calyptracea, Lam. Branchifera, Bl. *Descr.* Patelliform, oval or oblong, radiated; apex anterior, perforated. *Obs.* The Fissurellæ are known from Patellæ by the perforation in the aperture.

FISTULA'NA. (*Fistula*, a pipe.) *Fam.* Tubicolæ, Lam. Adesmacea, Bl. *Descr.* A transversely elongated, equivalve, inequilateral bivalve, enclosed by a septum within the widest, closed extremity of a straight calcareous tube. Fistulana is known from Gastrochæna by the straightness of the tube, and the oblong shape of the valves. Fig. 53, Fistulana Clava.

FLORIL'LUS. Montf. A genus of microscopic Foraminifera.

FO'LIATED. (*Folium*, a leaf.) When the edges of the successive layers of which a shell is composed, are not compact, but are placed apart from each other, projecting like tiles on the roof of a house, the shell is said to be of a foliated structure. The common Oyster, fig. 180, presents a familiar example.

FORAMINI'FERA. D'Orb. An order established for the minute, many-chambered internal shells, which have no open chamber beyond the last partition. Lamarck, D'Orbigny and other writers have placed them among the Cephalopoda in their systems; but Dujardin, on comparing the fossils with some recent species of the same class, arrived at the conclusion, now generally adopted, that they constitute a distinct class, much lower in

degree of organization, than even the Radiata. Not recognizing these microscopic bodies as shells, properly so called, but considering them sufficiently numerous and interesting to form a distinct branch of study, I do not think it desirable to describe the genera or to present any arrangement of them in this work.

FOR'NICATED. Arched or vaulted, as the costæ of Tridacna Elongata, fig. 157.

FRONT. The surface of a shell on which the aperture appears.

FRONDICULA'RIA. D'Orb. A genus of microscopic Foraminifera.

FUL'GUR. Montf. PYRULA perversa, Auct. and such other species as have an angulated spire. Fig. 388.

FU'SIFORM. (*Fusus*, a spindle.) Shaped like a spindle, swelling in the centre and tapering at the extremities. *Ex.* Fusus, fig. 387.

FU'SUS. Lam. (A spindle.) *Fam.* Canalifera, Lam. Siphonostomata, Bl. *Descr.* Fusiform, turrited, with many rounded whorls; aperture generally oval, terminating in a long, straight canal; operculum horny, pyriform. *Obs.* The Fusi are subject to considerable variations in form. The recent species are numerous and do not appear to be confined to any climate. The fossil species are also numerous, chiefly abounding in the tertiary formations. Fig. 387, Fusus Colus.

GALATHÆ'A. Brug. POTAMOPHILA, Sow. Megadesma Bowd.

GA'LEA. Klein. PURPURA, Auct.

GALEOLA'RIA. Lam. (From *Galea*, a helmet, or crest.) A genus composed of species of SERPULA, Auct. distinguished as being fixed by the side of the shell, and having the anterior extremity erect, the aperture terminating in a tongue-shaped projection. *Obs.* This genus is said by Lamarck to resemble Vermilia in other respects, but to differ in having the anterior part raised. Fig. 6, G. decumbens.

GALEOM'MA. Turt. *Fam.* PHOLADARIA, Lam. *Descr.* Thin, oval, equivalve, equilateral, with the ventral margin gaping; hinge with one cardinal tooth in each valve; muscular impressions two, approximate; palleal impression interrupted, not sinuated; ligament small, partly internal, partly external, fixed on a prominent fulcrum. *Obs.* The wide hiatus in the ventral margins of this equilateral shell prevents the possibility of confounding it with any other. Four or five recent species are known, one of which is found on the coast of Sicily. G. Turtoni, fig. 58.

GALERI'CULUS. (*Galericulum*, a little cap or bonnet.) VELUTINA, Auct.

GA'PING. Bivalve shells are said to *gape* when the margins do not meet all round. *Ex.* Gastrochæna, fig. 52.

GA'RI. Schum. PSAMMOBIA, Lam.

GAS'TERO'PODA. Lam. (Γαστηρ, *gaster*, belly; ποδα, *poda*, feet.) The second order of the class Mollusca, Lam. containing those molluscous animals whose organs of locomotion are ventral. This order is divided into Hydrobranchiata and Pneumobranchiata. Fig. 227, to 263.

GASTRA'NEA. Schum? Corbula, Auct.

GASTROCHÆ'NA. Speng. (Γαστηρ, *gaster*, belly; χαινω, *chaino*, gape.) *Fam.* Pholadaria, Lam. Pyloridea, Bl. *Descr.* Equivalve, regular, inequilateral, with a wide, oblique, ventral hiatus, enclosed in a curved, pyriform tube. Differing from Galeomma in being a free, oblique shell; from Fistulana, in the oval shape of the valves, and the curve of the tube; from Aspergillum and Clavagella, in both valves being free. *Obs.* The Gastrochænæ are found in the hollows of shells or other marine substances. Fig. 52, G. Modiolina.

GAS'TROPLAX. Bl. Umbrella, Lam.

GEOPO'NUS. Montf. A genus of microscopic Foraminifera.

GEOTRO'CHUS. Sw. Helix Pileus, Auct. Fig. 278, and other trochiform species.

GERVIL'LIA. Defr. *Fam.* Margaritacea, Bl. Malleacea, Lam. *Descr.* Equivalve, oblong, oblique; hinge long, straight, having small, irregular transverse ligamentary pits. *Obs.* This genus of fossil shells, found at various geological periods, from the Lias to the Baculite limestone in Normandy, is now extinct. In general form, it resembles Avicula, but in the hinge it approaches Perna. Fig. 169, Gervillia Avicularis.

GIB'BUS. Montf. Bulinus *Lyonetianus*, Lam. Pupa, Bl. fig. 284.

GIOE'NIA. Name given in the Encyclopédie Methodique, to the plates of the stomach of Bulla Lignaria.

GLANDI'NA. Schum. Polyphemus, Montf.

GLANDIO'LUS. Montf. A genus of microscopic Foraminifera.

GLAUCON'OME. Gray. *Fam.* Solenacea, Lam. *Descr.* Oblong or oval, transverse, slightly ventricose, equivalve, inequilateral; margins close, rounded anteriorly, somewhat acuminated posteriorly; hinge teeth three in each valve, of which the central in one valve, and the posterior in the other, are bifid; muscular impressions, anterior, elongated, marginal; posterior, sub-quadrate; palleal impression having a long sinus; ligament oblong, external; epidermis thin, horny, green, folded over the margins. *Obs.* This shell, of which only one species is known, inhabits some of the rivers of China. C. Chinensis, fig. 64.

GLOBIGERI'NA. D'Orb. A genus of microscopic Foraminifera.

GLYCIM'ERIS. Lam. *Fam.* Solenacea, Lam. Pyloridea, Bl. *Descr.* Equivalve, transverse, oblong, thick, compressed, gaping at both extremities; hinge callous, without teeth; ligament large, external, prominent; epidermis thick, black, horny, folded over the margins; muscular impressions two, distant, running

into the irregular palleal impression which unites them. *Obs.* But few species of this singular genus are known; Lamarck describes two species from the Northern Seas. Blainville is of opinion that they belong to the family of Nayades. Fig. 67, Glycimeris Siliqua.

GNA'THODON. Gray. (Γναθος, *gnathos*, jawbone; οδος, οδοντος, *odontos*, tooth.) *Fam.* Mactracea, Lam. *Descr.* Ovate, posteriorly angulated, equivalve, thick, ventricose, inequilateral, covered with a greenish brown epidermis; umbo distant, prominent; hinge having in one valve, a sharp, angular, notched, cardinal tooth, and two lateral teeth, the posterior of which is elongated, and the anterior angulated, tortuous, shaped like a jawbone; in the other valve, two cardinal and two lateral teeth, the anterior of which is wedge-shaped. Ligament internal, cuneiform, placed in a deep cardinal pit proceeding from the umbones; muscular impressions two; palleal impression having a slight sinus. *Obs.* Only one species is known, G. cuneatus, fig. 83, from New Orleans. It is known from all other shells by the characters of the hinge.

GON'IATITES. Sow. A genus composed of species of Ammonites, Auct. in which the last whorl covers the spire and the sinuations of the septa are angulated. Fig. 480, G. striatus.

GONIOSTO'MATA. Bl. A family belonging to the order Asiphonibranchiata, Bl. containing the genera Solarium and Trochus.

GRA'NULATED. (*Granum*, a grain.) Covered with minute grains, rough.

GRATELOU'PIA. Moulins. *Fam.* Nymphacea, Lam. *Descr.* Equivalve, inequilateral, sub-cuneiform, rounded anteriorly, subrostrated posteriorly; hinge with three cardinal teeth, a series of five or six irregular, small, diverging teeth behind the umbones, and one lateral, anterior tooth in each valve; ligament external; muscular impressions two; palleal impression sinuated posteriorly. *Obs.* This genus (Donax irregularis, Bast.) is only known in a fossil state. Fig. 102. G. Moulinsii.

GRY'PHÆA. Lam. (From *Gryps*, a griffin.) *Fam.* Ostracea, Lam. *Descr.* Inequivalve, free; lower valve large, concave; with the umbo prominent, incurved; upper valve small, flat, opercular; hinge toothless, with a curved, depressed area; one muscular impression. *Obs.* These shells, which approach the oysters, are of a more regular form, and are remarkable for the curved, produced beak of the lower valve. They are only known in a fossil state, belonging to the more ancient strata. Fig. 182, Gryphæa incurva.

GYMNOLE'PAS. Bl. Otion and Cineras, Leach.

GYPI'DIA. Dalman. A genus of Brachiopoda, thus described: "Larger valve with the umbo rostrated, remote from the hinge;

with the canal large, deltoid; bilocular within. PENTAMERUS, Sow. Fig. 210, 211, G. Conchidium, copied from Dalman.

GYROGON'A. Lam.

GYROIDIN'A. D'Orb. A genus of microscopic Foraminifera.

HALIO'TIS. Linn. (Αλα, *ala*, sea; ωτος, *otos*, ear.) *Fam.* Macrostomata, Lam. Otides, Bl. *Descr.* Auriform, broad, depressed, pearly within, rough, costated, tuberculated without; spire short, flat, consisting of one or two whorls; aperture wide, ovate; columella laminar, flat, oblique; a spiral series of perforations running along the dorsal margin. *Obs.* The splendid shells belonging to this genus are remarkable for the pearly iridescence of the inner surface, and the row of holes following the course of the spire. The soft parts are eaten in Guernsey and Jersey, and reckoned delicious. Fig. 338, H. rubra. 339, Padollus, Montf.

HA'LIOTOID. (*Haliotis* and ειδος, *eidos*, form.) Ear-shaped.

HA'MIFORM. (*Hamus*, a hook.) Curved at the extremity.

HA'MITES. Parkinson. (*Hamus*, a hook.) *Fam.* Ammonacea, Lam. *Descr.* Elongated, cylindrical, chambered, recurved at the smaller extremity, annulated; septa lobed and sinuated. *Obs.* This remarkable fossil from the Baculite limestone in Normandy, differs from Baculites in being curved round at one extremity, a circumstance from which its name is derived. Some small species are found in Chalk Marle, Folkstone. Fig. 484.* H. cylindricus.

HAR'PA. Brug. (*Harpa*, a harp.) *Fam.* Purpurifera, Lam. Entomostomata, Bl. *Descr.* Oval, ventricose, longitudinally and regularly costated; spire short, with rounded, dome-like whorls; aperture wide, emarginated; outer lip thickened, reflected, composing the last costa or rib; inner lip polished, spread over part of the body whorl, terminating in a point. *Obs.* This beautiful genus of shells is so clearly defined by the regular longitudinal ribs that adorn the external surface, suggesting the idea of a stringed instrument, that there is no danger of confounding it with any other. H. multicostata, (Buccinum costatum, Linn.) and H. ventricosa, are among the most elegant in form and colouring, of the testaceous productions of the sea; the former is rare. The recent species are not numerous, they inhabit the Indian Ocean. A fossil species occurs at Grignon, near Paris. Fig. 419, H. ventricosa.

HAR'PAX. Parkinson; PLICATULA, Auct.

HAR'PULA. Sw. A group of shells separated from VOLUTA, Auct. *Descr.* "Shell generally tuberculated or longitudinally ribbed; apex of the spire papillary, smooth, and in general distorted; pillar with numerous distinct plaits; the upper, small and slender, the lower, thickest and shortest." *Type.* H. Vexillum. (Voluta, Auct.)

HAUSTATOR. Montf. A genus proposed to include those species of TURRITELLA, Auct. which have angulated whorls.

HEL'CION. Montf. Genus composed of species of PATELLA, Auct. of an oval shape, with the apex distinctly and prominently bent forwards.

HE'LENIS. Montf. A genus of microscopic Foraminifera.

HELICI'NA. Lam. *Fam.* Colimacea, Lam. Ellipsostomata, Bl. *Descr.* Sub-globose, heliciform, rather thin; aperture sub-trigonal; outer-lip thickened and reflected, inner-lip spread over the body whorl, terminating in a point. Operculum testaceous, triangular, concentric. *Obs.* This genus, distinguished from Helix by having an operculum and a thickened columellar lip, consists of several pretty little recent species found in the West Indian, S. Sea and N. American islands. Fig 306, H. Major.

HELICI'TES. Bl. Part of the genus NUMMULITES, Lam.

HELICO'LIMAX. Fer. VITRINA, Drap. H. Pellucida, fig. 263.

HELIXA'RION. Fer. VITRINA, Drap. Differing from Helicolimax in the structure of the animal. Fig. 262.

HE'LIX. Auct. *Fam.* Colimacea, Lam. *Descr.* Orbicular, light, generally globular; spire short, last whorl ventricose, aperture oblique, peritreme reflected, interrupted by the most prominent part of the body whorl; columella confluent with the outer lip. and contiguous to the axis of the shell. No operculum, a thin epidermis. *Obs.* The land shells composing this genus are found in all parts of the world, the common snail, H. Aspersa, is well known as a destructive animal in our gardens. The genera Helix, Achatina, Bulinus, Clausilia, Anostoma, &c. have been united under one generic name by De Ferussac, and again divided under the following sub-generic names, each of which we shall illustrate by a figure. GENUS HELIX: *Sub-genus* 1, *Helicophanta*, consisting of species with large apertures, like Vitrina; Helix brevipes. *S. gen.* 2, *Cochlohydra*, Succinea Amphibia, Drap. *S. gen.* 3, *Helicogena*, consisting of the common species with the last whorl large; Helix Hæmastoma, H. Contusa, (Streptaxis, Gray,) H. Aspersa. *S. gen.* 4, *Helicodonta*, consisting of species with teeth or folds on the columella; Polydonta, Montf. Anostoma, H. Nuxdenticulata. *S. gen.* 5, *Helicigona*, Carocolla, Geotrochus. *S. gen.* 6, *Helicella*, consisting of depressed species with a large umbilicus; H. citrina, (Naninia, Gray.) *S. gen.* 7, *Helicostyla*, consisting of species with a simple aperture like the Helicogenæ, but with the whorls increasing very gradually. H. epistylium. *S. gen.* 8, *Cochlostyla*, Bulinus, *S. gen* 9, *Cochlitoma*, Achatina. *S. gen*, 10, *Cochlicopa*, Polyphemus Glans. *S. gen.* 11, *Cochlicella*, Bulinus decollatus. *S. gen.* 12, *Cochlogena*, Azeca tridens. *S. gen.* 13, *Cochlodonta*, Pupa Uva. *S. gen.* 14, *Cochlodina*, Clausilia macascarensis, Balea fragilis. The last three sub-genera are included in the genus Odostomia of Fleming. We give an example of each of these sub-divisions, for the sake of presenting the

reader with the principal variations to which the genus is subject. The established genera will be characterized in their places. Fig. 254 to 281.

HEMICAR'DIUM. Cuv. (ἡμισυς, *hemisus*, half; Καρδια, *cardia*, heart.) Cardium Hemicardium, fig. 123**, and several similar species.

HEM'ICYCLOSTOM'ATA. Bl. The fourth family of Asiphonibranchiata, Bl. containing the genera Natica, Nerita, Neritina and Navicella.

HEPTALAS'MIS. Leach, (Επτα, *hepta*, seven; ελασμος, *elasmos*, plate.) A small shell resembling Pentelasmis, from which it differs in the number of valves, being composed of seven valves according to Leach, but of eight, according to Gray, who counts the dorsal valve, which is jointed, as *two*, and calls his genus, Octolasmis, fig. 41, H. Warwickii.

HER'COLES. Montf. A microscopic shell, appearing from De Montfort's figure to resemble Trochus *Imperialis*.

HER'ION. Montf. Lenticulina, Bl. microscopic.

HERMAPHRODI'TA. Bl. Third sub-class of Paracephalophora, Bl. Divided into, Sect. 1. *symmetrical*, containing the orders Cirrobranchiata and Cervicobranchiata; Sect. 2, *non-symmetrical*, order Scutibranchiata.

HER'MES. Montf. A genus composed of Conus *Nussatella*, Auct. and other elongated, cylindrical, striated species, fig. 460.

HET'EROBRANCHIA'TA. Bl. The fourth order of the class Acephalophora, Bl. containing no testaceous mollusca.

HET'EROPODA. The fifth order of the class Mollusca, Lam. This order contains but one genus of shells, viz. Carinaria, fig. 488.

HETEROSTEGI'NA. D'Orb. A genus of microscopic Foraminifera.

HIATEL'LA. Daud. *Fam.* Lithophages, Lam. A genus composed of species of Saxicava, Auct. which have sharp, angulated posterior ridges; a circumstance which occurs to many species in a young state, which afterwards become rounded off. Fig. 95, Hiatella Biaperta.

HIA'TULA. Sw. A genus proposed to include those species of Oliva, Auct. which have widened apertures. *Ex.* O. Subulata, fig. 458.

HI'BOLITHES. Montf. A genus composed of species of Belemnites, Auct. which are swelled towards the apex, and contracted near the centre. B. Hastatus, Auct. fig. 468.

HIMAN'TOPODA. Schum. Malleus, Auct.

HINGE. The edge of bivalve shells, near the umbones, including the teeth and ligaments.

HIN'NITES. Fer. A generic name proposed for Pecten Pusio, Auct. remarkable for the irregularity of the outer surface, which

would almost lead to the belief of its being an attached shell. Fig. 173. H. Pusio.

HIP'PAGUS. Lea. *(Horse Boat.)* A minute fossil resembling Isocardia in form, but destitute of hinge teeth. H. Isocardioides, fig. 128.

HIP'POCHRENES. Montf. Species of Rostellaria, Auct. with the outer lip spread. Fig. 403, R. Columbaria.

HIP'PONYX. (Ιππος, *hippos*, horse; ονυξ, *onyx*, nail or hoof.) *Fam.* Rudistes, Lam. *Descr.* Inequivalve, sub-equilateral, rather irregular, destitute of ligament and hinge teeth; lower valve attached, flat, sub-orbicular, with a muscular impression, composed of two lunulate portions, meeting at one extremity, and presenting the form of a horse-shoe; upper valve conical, with the apex inclined backwards, and the muscular impression marginal. *Obs.* The earlier naturalists having met with only the upper valve of these shells, placed them among the Patelliform univalves; to some of which, particularly Pileopsis, they bear a very strong resemblance. The species of Hipponyx are numerous, and till lately only known in a fossil state. Fig. 199, H. Cornucopia.

HIPPOPO'DIUM. Conybeare. *Fam.* Cardiacea, Lam. *Descr.* Equivale, obliquely transverse, ponderous, deep, inequilateral; umbones incurved; ventral margin sinuated, so as to give a bilobed appearance to the shell; hinge incrassated, with one rugged, oblique tooth. *Obs.* These fossils are found in the upper beds of Lias. Fig. 129, H. Ponderosum.

HIP'PURITES. Montf. *Fam.* Orthocerata, Lam. Rudistes, Bl. *Descr.* Tubular, rude, irregular, attached; lower valve cylindrical, more or less lengthened, apparently divided into sections by septa, (considered by some authors as merely projecting layers of growth,) having one or two lateral tubes within; upper valve round, flat, fixed on the aperture of the tubular valve, like an operculum. This genus is known only in a fossil state, and but very imperfectly. Lamarck places it among his chambered Cephalopoda, and Blainville, considering it a true bivalve, enumerates it with his Rudistes. Hippurites Cornucopia, fig. 198.

HIP'POPUS. Lam. (Ιππος, *hippus*, horse; πυς, *pus*, foot.) *Fam.* Tridacnea, Lam. *Descr.* Equivalve, inequilateral, regular, subquadrate; lunule closed, flat, with crenulated edges; ventral margin deeply undulated; external surface, fluted with radiating ribs, which are transversely fringed with rows of tubular spines; hinge margin thick, with two long, compressed, posterior lateral teeth in one valve; three in the other; ligament marginal, external. *Obs.* The shell thus described is rightly separated from Tridacna, on account of the anterior dorsal margins being closed; whereas in Tridacna there is a wide hiatus. Only one species of this genus is known, which receives its name

from its resemblance in form to a horse's foot, when held with the flat anterior dorsal margin downwards. Few shells are found to concentrate so many beauties as the Hippopus Maculatus, commonly called the Bear's-paw clam; the delicate whiteness of the interior, the undulating edge, the radiating fluted columns, adorned at intervals with crisped fringes, and the richness of the variegated colouring are such as to secure the admiration of the most superficial observer. Fig. 156, H. Maculatus. Sowerby has mentioned fossil species.

HOR'TOLUS. Montf. SPIROLINA, Lam. Microscopic.

HYALÆ'A. Lam. (*Hyalus*, glass.) *Fam.* Pteropoda, Lam. Thecosomata, Bl. *Descr.* Globose, glassy, transparent, with a triangular opening at the upper part where the dorsal portion advances beyond the ventral; ventral portion vaulted; dorsal more flat; lower extremity tridentate. *Obs.* The singular structures composing this genus were formerly taken for bivalves, and named Anomia Tricuspidata, &c. They are now known to belong to the class of molluscous animals, called Pteropoda, from the wing-shaped organs of locomotion. A species of Hyalæa occurs in Sicily, in a fossil state. Fig. 226, H. Tridentata.

HYALI'NA. Studer. VITRINA, Drap.

HY'ALINE. (*Hyalus*, glass.) Glassy, thin, transparent. *Ex.* Carinaria Mediterranea, fig. 488.

HYDROBRANCHIA'TA. Bl. (*Hydra*, water; *branchiæ*, gills.) The first section of the order Gasteropoda, Lam. containing Molluscs which breath water only; divided into the families Tritoniana, Phyllidiana, Semi-phyllidiana, Calyptracea, Bullæana, and Aplysiana.

HY'RIA. Lam. A genus composed of species of Nayades, distinguished by their alated dorsal margins, and lamellated lateral teeth. HYRIA Corrugata, fig. 143. Hyria Syrmatophora, fig. 144.

JANE'RA. Schum. A genus composed of species of Pecten, Auct. having oblique plicæ or calli on each side of the ligamentary pit.

JAN'THINA. Lam. (*Janthum*, a violet.) *Fam.* Neritacea, Lam. Oxystomata, Bl. *Descr.* Sub-globose, thin, fragile, spire short, consisting of few whorls; aperture angulated, at the anterior junction of the inner and outer lips; columella tortuous, contiguous to the axis; outer lip thin, sinuated in the centre. *Obs.* The shells composing this genus are celebrated for their beautiful purple colour. The animal possesses a curious vesicular process, which keeps it floating on the surface of the water; it exudes a purple secretion when irritated. Fig. 333, J. Fragilis.

JATARO'NUS. Adanson. CHAMA, Auct.

I'BERUS. Montf. CAROCOLLA, Lam.

I'BLA. Leach. *Fam.* Pedunculated Cirripedes, Lam. *Descr.* Four valves, posterior pair elongated, anterior pair short, triangular; pedicle cylindrical, contracted at the base, hairy. *Obs.* I. Cuveriana, fig. 40, is brought from Kangaroo Island.

ICTHYOSAR'COLITES. Desmarest. *Fam.* Ammonacea, Lam. *Descr.* Chambered, slightly arcuate, laterally compressed; septa simple, leaving triangular articulations imbricated like the thick muscles of a fish.

JE'SITES. Montf. A minute fossil resembling GALEOLARIA.

I'LOTES. Montf. ORBICULINA, Bl. A genus of microscopic Foraminifera.

IM'BRICATED. (*Imbrex*, a tile.) A shell is said to be imbricated when the superficial laminæ are arranged over each other in the manner of tiles.

IMPERA'TOR. Montf. A genus composed of species of the genus TROCHUS, Auct. with whorls angulated and stellated, having an umbilicus. *Ex.* T. Imperialis. Some of the shells named Imperator in the British Museum belong to the genus Calcar, Montf. having no umbilicus.

IN'CRASSATED. (*Crassus*, thick.) Thickened, as the hinge of Glycimeris, fig. 67.

INCURV'ED. Turned inwards or bent forwards. Applied to symmetrical shells when the point of the apex turns towards the anterior extremity, as in Patella, fig. 229. The apex of a shell is said to be incurved when it is bent inwards, but not sufficiently so to be described as spiral. *Ex.* Ammonoceras, Lam. fig. 477.

INDEN'TED. (*In*, in; *dens*, a tooth.) Exactly the reverse of DENTATED; meaning a series of small cavities, such as might be produced by the entrance of teeth. The cast of a dentated surface would be indented.

INE'QUIVALVE. (*Æquus*, equal; *valva*, valve.) The two principal valves differing from each other in diameter or convexity.

INFE'RIOR VALVE. Is that which is attached to sub-marine bodies. Only applied to attached bivalves.

IN'FEROBRANCHIA'TA. Bl. The fourth family of the second section of Paracephalophora Monoica, Bl. containing no testaceous mollusca.

IN'FLATED. Swelled, as Bulla, fig. 250, 252. This term can only be applied to rotund shells, of a light, thin texture; in other cases we should use the word VENTRICOSE.

INFUNDI'BULUM. Montf. (*A funnel.*) A genus formed of those species of CALYPTRÆA, Lam. which having a spiral septum, so nearly resemble Trochus that some authors have placed them in that genus. One species is named Patella Trochiformis. Fig. 237.

INOCER'AMUS. Sow. *Fam.* Malleacea, Lam. Margaritacea, Bl. *Descr.* Thick, inequivalve, sub-equilateral, triangular, deep, with

the umbones incurved; hinge formed of a series of transverse grooves. *Obs.* The larger valves of these fossil shells resemble the larger valve of Gryphæa; but the hinge is quite distinct. The species described in Mineral Conchology are found in the blue Marl, at Folkstone, and in the chalk. I. Lamarkii. Catillus, Brogn. Fig. 167.

JODA'MIA. Defrance. A genus resembling Birostrites, except that in Jodamia one valve overwraps the other, while in Birostrites the circumference of the valves is equal.

IRIDI'NA. Lam. A genus belonging to the Nayades, and resembling the Anodontæ, Auct. but its peculiar characteristic is that the hinge lamina is tuberculated or crenulated in its whole length. Sowerby unites all the genera of the family in the genus Unio. Fig. 150, I. Elongata.

IRRE'GULAR Shells. Are those which, being attached to, or imbedded in other marine bodies, have no constant form, but are modified in shape according to the substances to which they are fixed, as the Chamacea, fig. 153 to 155.

I'RUS. Oken. Comprehending Pandora, Petricola, Saxicava, &c.

ISOCAR'DIA. Lam. (Ισος, *isos*, similar; Καρδια, *cardia*, heart.) *Fam.* Cardiacea, Lam. Camacea, Bl. *Descr.* Cordiform, regular equivalve, ventricose, with distant, diverging, involute, free umbones; hinge with two, compressed cardinal, and one, distant, compressed, lateral tooth in each valve; ligament external, bifid, diverging in the direction of the umbones. *Obs.* The shells composing this genus are remarkable for the beautiful curvature of the diverging umbones. Fig. 126, I. Moltkiana.

KEL'LIA. Turton. Mya Suborbicularis. Montagu.

LA'BIUM, or inner lip. Is used to express that side of the aperture which is nearest the axis, and generally contiguous to the body whorl, the lower part of this, when sufficiently distinct from the part which overwraps the body whorl, is called the Columella.

LA'BRUM, or outer lip. Is the edge of the aperture at the greatest distance from the axis.

LACU'NA. Turt. *Fam.* Turbinacea, Lam. *Descr.* Globose, thin, covered with a smooth epidermis; spire short, consisting of few rapidly increasing whorls; aperture semilunar, rounded at the extremities; columella oblique, reflected over part of the umbilicus; umbilicus forming a lengthened area behind the columella. Fig. 364, L. Pallidula.

LAGEN'ULA. Montf. A genus of microscopic Foraminifera.

LA'MELLATED. (*Lamella*, a thin plate.) When the layers of which a shell is composed, instead of being compacted into a solid mass, are separated, overlying each other with the edges produced, the structure is said to be lamellated or foliaceous.

LAMELLIBRANCHIA'TA. Bl. The third order of the class

Acephalophora, Bl. containing the families Ostracea, Subostracea, Margaritacea, Mytilacea, Polydontes, Submytilacea, Camacea, Conchacea, Pylorides, Adesmacea.

LAM'ELLIPEDES. Lam. (*Lamella*, a thin plate; *pes*, a foot.) The third section of the order Conchifera Dimyaria, containing bivalves, with the foot of the animal broad and thin; divided into the families Conchacea, Cardiacea, Arcacea, Trigonacea, Nayades. Fig. 111 to 152.

LAM'PAS. Montf. LENTICULINA, Bl. A genus of microscopic Foraminifera.

LANIS'TES. Montf. Reversed species of AMPULLARIA, fig. 319.

LAPLY'SIA. v. Aplysia.

LAPLYSIA'CEA. Lam. A family belonging to the first section of the order Gasteropoda, Lam. containing the genera Aplysia, and Dolabella. Fig. 254, 255. It should be Aplysiacea.

LAT'ERAL (*Latus*, side.) Teeth. Are those which taking their rise near the umbones proceed to some distance towards the sides of the shell; as distinguished from the cardinal teeth, which receive their full developement close to the umbones.

LAT'ERAL muscular impressions. Are those which are placed at a distance from each other, on the opposite sides of the shell.

LATI'RUS. Montf. A genus composed of species of Fusus, Auct. which have an umbilicus, and are turriculated.

LEGUMINA'RIA. Schum. A genus composed of species of Solen, Auct. which have an internal, longitudinal bar or rib. Fig. 61, S. Radiatus, Lam.

LENGTH. See Measurement.

LENTI'CULAR. (*Lens.*) Of a circular, convex form, as Pectunculus, fig. 134.

LENTICULI'NA. Lam. A genus of microscopic Foraminifera. *Descr.* Lenticular, sub-discoidal, compressed, convolute, symmetrical; aperture notched; chambers few in number; visible on the exterior, radiating from the centre of the disc.

LE'PADICEA. Bl. First family of the class Nemantopoda, Bl. containing the genera Gymnolepas, Pentalepas, Polylepas, and Litholepas.

LE'PAS. (Λεπας, *lepas*, a rock.) The Linnean name Lepas contains all the Cirripedes, or Multivalves. (Fig. 14 to 43.) It was formerly applied to the Limpets or Patella. In fact, the ancient definition was, "Concha petræ adhærens," and would apply to any shells attached to rocks.

LEPTÆ'NA. Dalman. A genus belonging to the Brachiopoda thus described: "Hinge compressed, rectilinear, frequently exceeding the width of the shell," Forming part of the genus PRODUCTUS, Sow. Fig. 206, L. depressa.

LEPTOCON'CHUS. (Λεπτος, *leptus*, thin; Κογχος, *conchos*, shell.) This shell resembles a young MAGILUS in general appearance,

although the animal is said to differ. In the young Magilus also, the inner lip is reflected over the body whorl, which is not the case in Leptoconchus, fig. 11.

LEP'TON. Turton. Solen, Squamosus, Montf. Fig. 62.

LIG'AMENT. (From *Ligo*, bind.) The true ligament is always external, and serves the purpose of binding the two valves of a shell together externally by the posterior dorsal margins. There is another substance, called by Gray the *Cartilage*, which is elastic and of a condensed fibrous structure, placed within the Ligament, either close to it, or at a more interior part of the shell; it is sometimes contained in a pit formed for its reception, in the centre of the hinge. This substance being elastic, keeps the valves open, unless drawn together by the counteracting force of the adductor muscles. When conchologists speak of a shell as having the Ligament external, the real meaning is that these two substances are so close together, as in appearance to constitute one body. When two ligaments are spoken of, as in Amphidesma, the meaning is that the cartilage occupies a separate place on the hinge.

LIGAMENTI'FEROUS. (*Ligament*, and *fero*, bear.) Having or containing the ligament, as the cardinal pit in Mya, fig. 71.

LI'GULA. Montagu. A genus containing the more rounded and less gaping species of Lutraria, Auct. Fig. 77, Lutraria Papyracea.

LI'GUUS. Montf. A genus containing species of Achatina, Auct. which have rounded apertures and lengthened spires, differing from his Polyphemi, which have lengthened apertures. A. virginea, Auct. fig. 286, is the type of this genus.

LIMACI'NEA. Lam. A family of the second section of Lamarck's order Gasteropoda, containing the genera Parmacella, Limax, Testacella and Vitrina. To these may be added Plectrophorus and Cryptella.

LI'MA. Brug. (*Lima*, a file.) *Fam.* Pectinides, Lam. Subostracea. Bl. *Descr.* Equivalve, inequilateral, compressed, oblique, auriculated, oval, radiately ribbed, or striated, imbricated, covered with a light brown epidermis; hinge with a triangular disc between the umbones, divided in the centre by a triangular ligamentary pit, without teeth; muscular impression, one, sublateral, sub-orbicular. *Obs.* The shells thus described are marine, two or three species being found on our coasts, and fossil species occuring in Lias, inferior Oolite, Calcaire-grossièr, &c. They differ from Pecten, in having a wide hiatus for the passage of a byssus, by which they are occasionally attached, and also in the triangular disc, which separates the umbones. The animal makes use of the valves of his shell as natatory organs, working them like fins or paddles, and by this means proceeding at a rapid rate through the waters. L. Squamosa, fig. 174.

LIMACI'NA. Cuv. (*Limax*, a snail.) *Fam.* Pteropoda, Lam. *Descr.* "Papyraceous, fragile, planorbicular, sub-carinated, obliquely convolute; spiral side rather prominent, the other side umbilicated, aperture large, entire, not modified, peristome sharp. *Obs.* This is SPIRATELLA, Bl. The shell figured as Limacina in Sowerby's Genera, Art. Pteropoda is an *Atlanta*. Spiratella Limacinea, fig. 224, copied from Blainville.

LIMACI'NEA. Bl. The third family of the order Pulmobranchiata, including the genera Succinea, Bulinus, Achatina, Clausilia, Pupa, Tomogerus, Helix, Vitrina, Testacella, Parmacella, and Limax.

LI'MAX. *Fam.* Limacinea, Lam. and Bl. *Descr.* Internal, irregular, sub-quadrate, scutiform, crystalline; apex rounded, indistinct; epidermis light brown, thin, extending beyond the margin. *Obs.* The shell is placed under the scutellum of the common garden slug. Fig. 259, L. Antiquorum.

LIM'NACEA. Bl. The first family of the order Pulmobranchiata, Bl. containing the genera Lymnea, Plysa and Planorbis.

LIM'NEA. Lam. (Λιμνας *limnas*, lacustrine.) *Fam.* Limnacea, Lam. and Bl. *Descr.* Oblong, light, thin; spire variable in length, acute; last whorl large; aperture large, longitudinal, entire; inner lip spread over a portion of the last whorl; columella forming an oblique fold; outer lip rounded at each extremity, thin. *Obs.* These light horn coloured shells are common in standing pools, ponds and ditches, in various parts of Europe. They resemble the Amber shell, (Succinea,) in shape, but the animal of the latter is amphibious, and the shell is of a bright amber colour. L. Stagnalis, fig. 308. L. Aserta, fig. 309. (RADIX Montf.) The reverse species have been separated under the name Physa, 310. Other generic names have been given to other species.

LINES OF GROWTH. The concentric striæ or lines, formed by the edges of the successive layers of shelly matter deposited by the animal, by which it increases the shell. The outer edge of the aperture is always the last line of growth.

LIN'GUIFORM. (*Lingua*, tongue; *forma*, form.) Tongue-shaped.

LIN'GULA. (Dim. from *lingua*, tongue.) *Fam.* Brachiopoda, Lam. Palliobranchiata, Bl. *Descr.* Equivalve, oblong, depressed, thin, equilateral, gaping and pointed at the umbones, gaping and truncate or trilobate at the opposite extremities, attached by a fleshy pedicle fixed to the umbones. *Obs.* This is the only bivalve shell which is pedunculated, in which respect it constitutes a singular anomaly. The ancient writers, from seeing the separate valves, placed it in their systems under the name Patella Unguis. There are several recent species found in the Molluccas, and some fossils in sandy indurated marl, in Durham limestone and in alluvium of Suffolk. L. Anatina, fig. 219, is so named from its resemblance to a duck's bill.

LINGULI'NA. D'Orb. A genus of microscopic Foraminifera.

LIN'THURIS. Bl. A genus of microscopic Foraminifera.

LIP. v. LABRUM and LABIUM.

LIPPIS'TES. Montf. A genus of microscopic Foraminifera.

LI'THODOMUS. Cuv. (Λιθος, *lithos*, stone; Δῶμα, *doma*, house.) *Fam.* Mytilacea, Lam. *Descr.* Transverse, elongated, cylindrical, equivalve, with the extremities rounded, and the posterior extremity rostrated; umbones not prominent, terminal; hinge straight, destitute of teeth; ligament linear, most conspicuous within; muscular impressions, two. *Obs.* The shells composing this genus differ from Modiola not only in the cylindrical form, but also in the circumstance from which the generic name is derived, i. e. of their living in stones. Thus while the form and structure of the shell bring it near the Mytili, or Muscle shells, the habits of the animal cause it to approach the Lithophagi, or rock-eating molluscs of Lamarck. L. Dactylus, is the Mytilus Lithophagus of ancient authors. Fig. 161, L. Dactylus.

LITHOLE'PAS. Bl. (Λιθος, *lithos*, stone; Λεπας, *lepas*, rock.) De Blainville's name for LYTHOTRYA, Sow.

LITHOPHA'GIDÆ. Lam. (Λιθος, *lithos*, stone; Φαγω, *phago*, eat or gnaw.) A family of the order Conchifera Dimyaria, Lam. consisting of terebrating bivalves, gaping anteriorly, having no accessary valves; and containing the genera Saxicava, Petricola, Venerupis, to which are added other genera enumerated in explanation of figures 91 to 97.

LITHOTRY'A. Sw. (Λιθος, *lithos*, stone; τρυω, *truo*, to bore through.) *Fam.* Pedunculated Cirripedes, Lam. *Descr.* Eight unequal valves, forming a laterally compressed cone, the lower central valves being very minute; pedicle fleshy, scaly at the upper extremity; fixed at the base in a patelliform shelly support. *Obs.* This genus derives its name from the power possessed by the animal of making dwelling holes in stones or pieces of rock. The remarkable shelly cup at the base of the pedicle is regarded as analagous to the shelly base of the Balanus, so that this genus would form an intermediate link between the Sessile and Pedunculated Cirripedes of Lamarck. Fig. 39, L. dorsalis.

LITTORI'NA. Fer. (*Littus*, a shore.) *Fam.* Turbinacea, Lam. *Descr.* Turbinated, thick; spire acuminated, consisting of few whorls, about one-third of the axis in length; aperture entire, large, rounded anteriorly; outer lip thickened within, acute; columella rather flattened. Operculum horny, spiral, with rapidly increasing volutions. *Obs.* The shells composing this genus are known from Turbo and Phasianella by the horny operculum; and from Trochus, which also has a horny operculum, by the small number of the whorls. The Littorinæ, among which may be enumerated the common Periwinkle, are, as the name implies, found on the sea shores, feeding upon sea weed, in all parts of the world. Fig. 363, L. Vulgaris.

LITUA'CEA. Bl. The second family of Polythalamacea, Bl. partly corresponding with the "Lituolées," Lam. and containing the genera Lituola, Icthyosarcolites, Spirula, Hamites and Ammonoceras.

LITUI'TUS. Montf. SPIROLINA, Lam. Microscopic.

LI'TUOLA. Lam. A genus of microscopic Foraminifera.

LI'TUOLÆ. Lam. The third family of Polythalamous Cephalopoda, Lam. containing the genera of microscopic Foraminifera, Lituola and Spirolina. The genus Spirula, also placed in this family, does not by any means agree with Lamarck's definition, "the last whorl terminating in a straight line."

LOBA'RIA. Schum. SANGUINOLARIA rosea, Lam. Fig. 98, and other similar species.

LOBA'TULA. Fleming. A genus composed of two very minute species of chambered shells. Serpula lobata, and S. concamerata, Mont. Test. Brit. 515.

LOMAS'TOMA. Rafinesque. An imperfectly defined genus, probably belonging the Limnacea.

LONGITU'DINAL. Lengthwise. Longitudinal striæ, ribs, &c. are those which radiate from the apex, and follow the spiral direction of the whorls in spiral shells; and from the umbo to the ventral margin in univalves. The term "decourantes," is employed by French conchologists. The bands in Achatina, fig. 286, are longitudinal or spiral.

LORI'PEDES. Poli. A genus composed of species of LUCINA, Auct. in which the lunules are not prominent.

LOTORI'UM. Montf. A genus composed of species of TRITON, Auct. in which the aperture is effuse. T. Lotorium, fig. 400.

LOTT'TIA. Gray. PATELLOI'DES. Quoy and Gaimard. *Fam.* Phyllidia, Lam. *Descr.* Patelliform, rather flat, apex obtuse, leaning towards the posterior margin; muscular impression not symmetrical, but widest on the right side near the head of the animal; central disc of a variable brown colour. *Obs.* The shells of this genus so closely resemble Patella, that it is almost impossible to make the distinction from the shells alone. They are, however, generally flatter, and have the apex placed somewhat nearer the posterior margin. The animals are very distinct. Fig. 231, L. Antillarum.

LUCERI'NA. Humph. A generic name applied to some species of HELIX included in De Ferussac's sub-genus Helicogena.

LUCI'NA. Brug. *Fam.* Nymphacea, Lam.; Conchacea, Bl. *Descr.* Equivalve, inequilateral, orbicular, lenticular, radiately striated; hinge with generally two minute, cardinal teeth, which are sometimes nearly obsolete, and two lateral teeth on each side of the umbo in one valve, one in the other; ligament external, partly hidden by the margins of the valves when closed. Muscular impressions two in each valve, the anterior one produced into an elongated, ligulate band, the posterior short and

semi-rotund; impression of the mantle not sinuated. *Obs.* The shells of this genus resemble Amphidesma in general form, but are distinguished by the external ligament, the elongated muscular impression and the want of a sinus in the palleal impression. Fig. 104, L. Tigerina.

LU'NULATE. (*Luna*, the moon, dim.) Moon-shaped, having the form of a crescent. Applied most frequently to muscular impressions. Semilunar is sometimes used, perhaps with greater accuracy, to express the same shape.

LUPO'NIA. Gray. A genus composed of species of Cypræa, Auct. which are described as having the anterior of the columellar lip crossed by several irregular ridges, without any distinct marginal ones, internally narrow, flat; the shell pear-shaped, smooth or cross-ribbed. *Ex.* L. Algoensis. Cypræa Algoensis, Gray, fig. 447.

LUTRA'RIA. Lam. (*Lutum*, mud.) *Fam.* Mactracea, Lam. *Descr.* Thin, equivalve, inequilateral, transverse, oblong or ovate, gaping at both extremities; hinge with one double and sometimes one single cardinal tooth in each valve, and a triangular oblique pit with a prominent margin, containing the ligament; muscular impressions distant; palleal impression having a large sinus. *Obs.* This genus differs from Mactra, in the entire absence or slightness of lateral teeth. Fig. 77, L. Papyracea; Ligula, Leach. Fig. 78, L. Solenoides.

LUTRI'COLA. Bl. Lutraria, Lam. Fig. 77, 78.

LY'COPHRIS. Montf. A microscopic fossil described as resembling Nummulites, but having a granulated surface.

LYMNA'DIA. Sw. Unio Gigas, Lea.

LYM'NEA, Limnea.

LYMNEA'NA. Lam. A family belonging to the first section of the order Trachelipoda, Lam. containing the genera Planorbis, Physa and Limnea. Fig. 308 to 312.

MAC'O'MA. Leach. Venus tenuis, Bl. and similar species.

MACRODI'TUS. Montf. Lenticulina, Bl. A genus of microscopic Foraminifera.

MACROSTOM'ATA. Lam. (Μακρως, *macros*, long; στομα, *stoma*, mouth.) A family belonging to the first section of the order Trachelipoda, containing the genera Sigaretus, Stomatella, Stomatia, Haliotis. To these may be added several genera enumerated in explanation of figures 334 to 341.

MAC'TRA. Lam. (*Mactra*, a kneading trough.) *Fam.* Mactracea, Lam. Conchacea, Bl. *Descr.* Usually thin, equivalve, subequilateral, sub-trigonal, slightly gaping at the extremities; hinge with one cardinal tooth, divided into two parts, diverging from the umbo, with sometimes a very small laminar tooth close to its side; a deep triangular pit near the centre, containing the cartilage; one long, laminar, lateral tooth on each side of the umbo in one valve, received between two in the other; muscular

impressions two, lateral; palleal impression with a small sinus. *Obs.* This genus contains many species of beautiful shells found in various parts of the world, some are common in Britain. Fossil species are not numerous, they occur in the tertiary strata. Fig. 79 to 82.

MAC'TRADÆ. Lam. A family of the order Conchifera Dimyaria, Lam Sect. Tenuipedes, composed of equivalve shells, generally gaping, with ligament internal. This family contains the genera Lutraria, Mactra, Crassatella, Erycina, Ungulina, Solenimya, and other genera enumerated in explanation of figures 79 to 88.

MA'GAS. Sow. (Μαγας, *magas*, a board, a deck.) *Fam.* Brachiopoda, Lam. *Descr.* Equilateral, inequivalve; one valve convex, with a triangular area, divided by an angular sinus in the centre, the other valve flat, with a straight hinge line and two small projections; a partial longitudinal septum, with appendages attached to the hinge within. Differing from Terebratula in having a triangular disc, and not a circular perforation. Magas pumilus, fig. 209.

MAGI'LUS. Montf. *Fam.* Cricostomata, Bl. Serpulacea, Lam. *Descr.* Thick, tubular, irregular contorted; rounded above, keeled beneath, free; apical extremity convolute, heliciform, ovate or sub-globose; aperture elliptical. *Obs.* This shell when in a young state presents the characteristics of a regularly formed spiral univalve, living in holes in madrepores, as the madrepore increases the animal gives an eccentric course to the shell, in order to have its aperture even with the surface, and leaving the nucleus or young shell, fills it up with calcareous matter, to reside in the open extremity of the tube.

MALACO'TA. Schum. Otion, Leach.

MAL'ACOZOA'RIA. Bl. (Μαλακος, *malacos*, soft; Ζωον *zoon*, animal.) The type or general appellative in De Blainville's system, including all molluscous animals, excepting those with multivalve shells.

MALDA'NIA. Lam. The second family of the order Annelides Sedentaria. The only genus of shells described in this family is Dentalium, fig. 2.

MALEN'TOZOA'RIA. Bl. (Μαλακος, *malacos*, soft; εν, *in*, τεμνω, *temno*, to cut; Ζῶον, *zoon*, animal.) Or articulated mollusca. Sub-type in De Blainville's system, comprehending those with multivalve shells.

MALLEA'CEA. Lam. A family belonging to the order Conchifera Monomyaria, containing the genera Crenatula, Perna, Malleus, Avicula, Meleagrina; to which may be added other genera enumerated in explanation of fig. 163, to 170.

MAL'LEUS. Lam. (*Malleus*, a hammer.) *Fam.* Malleacea, Lam. Margaritacea, Bl. *Descr.* Equivalve, inequilateral, foliaceous, trilobate, undulated, irregular, attached by a byssus passing

through a sinus in one valve; hinge rectilinear, lengthened by two auricles; with a small disc under the umbones, containing the ligament, and a groove containing the cartilage; muscular impressions one in each valve, large, reniform, and one or two others extremely minute. *Obs.* Malleus Vulgaris, the type of this genus, is a most singular shell, commonly called the "Hammer Oyster," from the peculiarity of its shape. It belongs to the Linnæan genus Ostræa, from which it differs in being attached by a byssus. Fig. 165. M. vulgaris.

MAM'MILLATED. (*Mammula*, a little teat.) A term applied to the apex of a shell when it is rounded like a teat. *Ex.* Voluta Vespertilio, fig. 433.

MARGARI'TA. Leach. (*Margarita*, a pearl.) A genus of small shells belonging to the genus Trochus, from which it differs in having an operculum consisting of few whorls. M. tæniata, fig. 362.

MARGARITA'CEA. Bl. The third Family of Lamellibranchiata, Bl. consisting of the genera Vulsella, Malleus, Pinna, Crenatula, Inoceramus, Catillus, Pulvinites, Gervillia, Avicula.

MARGARITA'CEOUS. (*Margarita*, a pearl.) Pearly.

MARGARITA'NA. Schum. A sub-genus of Uniones, composed of species having "one cardinal tooth." Alasmodon, Say. Mya *Margaritifera*, Linn.

MARGARITI'FEROUS. (*Margarita*, pearl; *fero*, bear.) Pearl-bearing. Applied to shells which form pearls; as Meleagrina Margaritifera or Pearl-bearing Oyster.

MAR'GINAL. Near the margin or edge.

MAR'GINATED. (*Margo*, edge.) Having an edge or border thicker than the rest of the shell, from which circumstance the little genus Marginella derives its name.

MARGINEL'LA. (A little rim or border.) *Fam.* Columellaria, Lam. Angyostomata, Bl. *Descr.* Ovate, smooth, shining, with a short, sometimes hidden spire; aperture narrow, emarginated; columella with several oblique folds; outer lip neatly reflected. *Obs.* This genus of pretty little shells differs from Voluta in the reflection of the outer lip. The animal covers the greater part of the shell with the mantle, and by continually depositing vitreous matter gives it a bright polish, which together with the delicately neat arrangement of colours in most species. renders them exceedingly beautiful. The Marginellæ are marine. A few fossil species are found in the Calcaire-grossièr. Fig. 437. M. Glabella.

MARGINULI'NA. D'Orb. A genus of microscopic Foraminifera.

MARMAROS'TOMA. Sw. A generic name, including all species of Trochus and Turbo which have a shelly operculum. The same distinction is recognized by Sowerby, who, however, retains the name Turbo. Fig. 368, Turbo setosus.

MARTE'SIA. Leach. A genus composed of those species of Pholas, Auct. which are closed at both extremities. *Ex.* P. clavata.

MEA'SUREMENT. The most approved method of stating the measurements the various kinds of shells is as follows: Of *symmetrical, convolute univalves*, the length is from anterior to posterior; the depth from ventral to dorsal; the breadth, from side to side of the aperture. Of *symmetrical conical univalves*, length, from front to back; breadth, from side to side; depth, from apex to base. Of *spiral univalves*, length, from apex to anterior of the columella or axis of the shell; breadth, across from the outer lip to the opposite side. Of *non-symmetrical bivalves*, the length is from the anterior to posterior margin; breadth, from the greatest convexity of one valve to the corresponding part of the other; depth, from the dorsal to the ventral margin.

MEGADES'MA. Bowd. (Μεγας, *megas*, great; δεσμα, *desma*, ligament.) Potamophila, Sow. Galathea. Lam.

ME'GALODON. Sow. (Μεγας, *megas*, great; οδος, *odos*, tooth.) *Fam.* Cardiacea, Lam. *Descr.* Equivalve, longitudinal, acuminated at the umbones, thick; hinge forming an incrassated septum across the cavity of the shell, with a large bifid tooth in the right valve and one irregular and one pointed tooth in the left; ligament long, external. *Obs.* This fossil resembles Mytilus in general form, but differs in the thickness of the shell, and in the incrassated hinge, with the large tooth. Fig. 127, M. cucullatus.

MEGARI'MA. Rafinesque. A genus proposed to include species of Terebratula, Auct. which are smooth and nearly equivalve. T. lævis, T. crassa, T. truncula.

MEGASPI'RA. Lea. (Μεγας, *megas*, great, spire.) M. Ruschenbergiana, fig. 294, is a pupiform land shell, remarkable for the length of its spire, which consists of no less than twenty-five close-set, narrow, gradually increasing whorls.

MEGATRE'MA. Leach. A genus composed of those species of Pyrgoma, Auct. which have a large aperture. Fig. 33.

MELAM'PUS. Montf. Conovulus, Lam. A genus composed of species of Auricula, Auct. of a conical form. A. conoidalis, fig. 298.

MELA'NIA. (Μελας, *melas*, black.) *Fam.* Melaniens, Lam. Ellipsostomata, Bl. *Descr.* Turrited; spire generally elongated, acute; aperture entire, oval or oblong, pointed at the posterior extremity, rounded anteriorly, with a kind of indistinct canal or sinuosity; epidermis thick, generally black. *Obs.* In common with other fresh-water shells, the Melaniæ are frequently found with corroded apices. This genus is known from Melanopsis by the absence of the notch at the anterior part of the aperture. The Melaniæ occur in rivers of warm climates. The fossil species are frequent in the upper marine formations. Fig. 313, M. subulata.

MELANIA'NA. Lam. A family belonging to the first section of

the order Trachelipoda, containing the genera Melania, Melanopsis and Pirena. To which may be added Anculosa and Pasithæa? Fig. 313 to 317.

MELANOI'DES. Olivier. MELANOPSIS, Fer.

MELANOP'SIS. Fer. *Fam.* Melaniana, Lam. Entomostomata, Bl. *Descr.* Oval or oblong, fusiform; spire acute, sometimes elongated; aperture oblong or oval, pyriform with a distinct notch at the anterior extremity; columella tortuous, callous, thickened at the extremity near the spire; epidermis thick, horny, generally black. *Obs.* This description includes Pirena, Lam. The Melanopsides are known from the Melaniæ by the notch in the aperture. Fig. 315, M. costata.

ME'LAS. Montf. MELANIA, Auct.

MELEAGRI'NA. Lam. Margarita, Leach. A genus composed of the Pearl Oyster, and similar species, separated from Avicula on account of the roundness of their general form, but re-united by Sowerby. For generic characters, see Avicula. Fig. 164, M. margaritifera.

MELEA'GRIS. Montf. TURBO Pica, Auct. and similar species. having the aperture oblique, the columella gliding imperceptibly into the outer-lip, and having an umbilicus.

MELI'NA. Schum. PERNA, Auct.

ME'LO. Brod. (*Melo*, a melon.) *Fam.* Columellaria, Lam. *Descr.* Light, ventricose, oval, with a light, greenish brown epidermis; spire short, papillary, regular, sometimes hidden by the last whorl; aperture large, nearly as long as the whole shell, emarginated anteriorly; outer-lip thin; columella slightly curved, with four or five laminar, oblique, prominent, plaits. *Obs.* The genus Melo has been separated from *Voluta* principally on account of the largeness of the aperture, the lightness of the shell and the thinness of the outer-lip. Melo differs from Cymba in the regularity of the spiral apex, and in the greater rotundity of the shell. The Melons are beautifully coloured, large shells, found in the seas of the old world. The Melo Indicus has a certain resemblance to a Melon. Fig. 435, M. Æthiopicus.

MELO'NIA, or MELONITES, Bl. A genus of microscopic Foraminifera.

MERCENA'RIA. Schum. VENUS Mercenaria, Auct. The Money Shell, which passes current as cash, under the name of Wampum, among the North American Indians.

MERE'TRIX. Lam. Original name for Cytheræa, Lam.

ME'ROE. Schum. Cytheræa sulcata, scripta, hians, Auct. and similar species. Fig. 117, *a*.

MESODES'MA. Desh. ERYCINA, Lam.

MESOM'PHYX. Rafinesque. A genus proposed to be separated from Helix, Auct.

MIL'IOLA. Lam. A genus of microscopic Foraminifera.

MIS'ILUS. Montf. A genus of microscopic Foraminifera.

MI'TRA. Lam. (*Mitre.*) *Fam.* Columellaria, Lam. Angyostomata, Bl. *Descr.* Oblong, thick, covered with a light brown epidermis; spire long, turrited, acute; aperture emarginated anteriorly; outer lip thickened; columella with several oblique, thick plaits. *Obs.* The pretty small shells composing this genus differ from Marginella, not only in general form but in the outer lip not being reflected. They are varied in colouring, which is generally rich, and also in form, some being angulated, some plicated, some coronated, some smooth. Fig. 431, M. Plicaria. Fig. 432, Conohelix marmorata, Sw.

MITREL'LA. Sw. A genus consisting of Mitra Fissurella, casta, Olivæformis, and similar species.

MITRE'OLA. Sw. One of Mr. Swainson's divisions of the genus Mitra, Auct. Described as having the apex slightly thickened.

MODI'OLA. Lam. (*Modiolus*, a little measure.) *Fam.* Mytilacea, Lam. *Descr.* Equivalve, oblique, cuneiform, inequilateral, thin, with the anterior side short and narrow, slightly gaping to admit the passage of a byssus, and the posterior side elongated, broad, sub-quadrate; hinge thin, toothless, rectilinear, with a long, partly external ligament; muscular impressions two in each valve; palleal impression irregular, not sinuated. *Obs.* This genus differs from Mytilus, to which the common muscle belongs, in the anterior margin being rounded out beyond the umbo, which in Mytilus is terminal. The Lithodomi may be known from this genus by their cylindrical form. Fig. 160, M. Tulipa.

MOLLUS'CA. (From *Mollis*, soft.) The twelfth class of invertebrated animals, Lam. including all soft animals with univalve shells, or none; divided into the following orders: Pteropoda, Gasteropoda, Trachelipoda, Cephalopoda, Heteropoda, fig. 220 to 488. The term Mollusca is used in a general sense to denote all the animals that come under the type Malacozoa, Bl.

MONEY COWRY. Cypræa Moneta, which passes current in some parts of Africa.

MONO'CEROS. (Μονος, *monos*, single; κερας, *ceras*, horn.) *Fam.* Purpurifera, Lam. *Descr.* Ovate, thick, covered with a brown epidermis; spire short, consisting of few whorls; aperture oval, emarginated anteriorly; columella rather flat; outer lip thick, with a prominent tooth near the anterior extremity. *Obs.* This genus resembles Purpura in every respect, except in having the tooth from which the name is derived.

MONOCONDYLÆ'A. D'Orbigny. A sub-genus of Uniones described as equivalve, inequilateral, sub-rotund or angulated; hinge consisting of a large, obtuse, round cardinal tooth in each valve, with no lateral teeth. Monocondylæa, (Unio) Paraguayana, D'Orb. fig. 149.

MONODON'TA. Lam. Odontis, Sow. A genus separated from Trochus. Auct. on account of the tooth or notch with which the columella abruptly terminates. M. labeo, fig. 366.

MONO'ICA. Bl. Second sub-class of the class Paracephalophora, Bl. divided into the orders Pulmobranchiata, Chismobranchiata, Monopleurobranchiata, in the first section; and Aporobranchiata, Polybranchiata, Cyclobranchiata, Inferobranchiata and Nucleobranchiata, in the second.

MONOMYA'RIA. Lam. (Μονος, *monos*, single; μυον, *myon*, a muscle.) The second order of Conchifera, consisting of those bivalve shells which have but *one* principal muscular impression in each valve. The Monomyaria are thus divided: First section, families Tridacnea, Mytilacea, Malleacea; second section, families Pectenides, Ostracea; third section, families Rudistes, Brachiopoda.

MONOPLEUROBRANCHIA'TA. Bl. The second order of the first section of Paracephalophora Monoica, Bl. containing *Fam.* 1, Subaplysiaca; 2, Aplysiaca; 3, Patelloidea; 4, Acera.

MONOPTÝG'MA. Lea. A genus of small fossil shells resembling Tornatella, but having a strong, oblique fold in the centre of the columellar lip. M. Elegans, fig. 344.

MONOTHALA'MIA. (Μονος, *monos*, single; θαλαμος, *thalamos*, chamber.) The second division of Cephalopoda, Lam. containing only one genus, viz. Argonauta.

MONOTIG'MA. Gray, fig. 371.

MO'RIO. Montf. Cassidaria, Auct. C. Echinophora, fig. 407.

MULI'NIA. Gray. A genus composed of species of Mactra, Auct. described as having the ligament (properly so called) internal, and lateral teeth simple. *Ex.* fig. 82. M. bicolor; Mactra, Auct.

MULLE'RIA. Fer. *Fam.* Ostracea, Lam. *Descr.* Irregular, subquadrate, inequivalve, inequilateral, foliaceous, attached, pearly within, green, horny without; hinge irregular, with a partly external ligament passing to the interior through a sort of sinus. *Obs.* This remarkable shell resembles Etheria, in general form and appearance, but is distinguished by having only one muscular impression. It is so rare that, although not very beautiful, a specimen has been known to fetch £20 at a sale. Fig. 192.

MULTISPI'RAL. (*Multus*, many; *spira*, spire.) Applied to a shell when the spire consists of numerous whorls; or to an operculum of numerous volutions.

MUL'TIVALVE. (*Multus*, many; *valva*, valve.) Consisting of numerous valves. There are three kinds of Multivalve shells; 1st. Those in which the valves are arranged in pairs, and produce a flattened figure, as pedunculated Cirripedes, fig. 34 to 43; 2nd. Those in which they are arranged circularly, as Sessile Cirripedes, fig. 14 to 33; 3rd. Those in which they are arranged in a straight line, as Chiton, fig. 227.

MU'REX. Auct. (*A sharp rock.*) *Fam.* Canalifera, Lam. Siphonostoma, Bl. *Descr.* Turrited, ventricose, thick, with three or more longitudinal, continuous, branched, spinose, or fringed

varices; spire prominent, acute; aperture oval, terminating in a posterior, partly closed canal; outer lip varicose; inner lip smooth, laminar; operculum horny, concentric, pointed. *Obs.* This genus contains some of the most exquisitely beautiful shells in existence, the richness of their colouring, the ramifications of the varices, would render most of the species, the finest possible subjects for the exercise of the painter's art in still life. The most remarkable are the Rosebud Murex, with its pink-tipt fringes; the Venus Comb, with its long rows of parallel spines; the Ducal Murex, the Royal Murex, and many others which are much sought after by collectors. Murex may be distinguished from Triton by the continuity of the varices, which follow each other in a tortuous direction on the spire. The Ranellæ have only two rows of varices, and have a posterior, as well as anterior canal; while Murices have three or more varices, and but one canal. Fig. 395 to 397.

MUSCULR IMPRESSIONS. Are the marks or areas formed on the interior surface of shells, by the muscular fibres which attach the animals to them. Lamarck has divided his Conchifera into two kinds: 1st. Monomyaria, those which have but one adductor muscle, and consequently have but one impression in each valve, as the common oyster, fig. 180; 2nd. The Dimyaria, those that have two, and consequently have two impressions in each valve. There are other smaller impressions in some shells, besides the principal. The Palleal impression is a line or scar passing near the margin of the shell.

MY'A. (Μυον, *a muscle.*) *Fam.* Myaria, Lam. Pyloridea, Bl. *Descr.* Transverse, oval, thick, gaping at both extremities, rounded anteriorly, acuminated posteriorly; hinge with one large, dilate, compressed tooth, in one valve, and a suture in the other, containing the cartilage; muscular impressions two, distant, large, irregular; palleal impression with a large sinus. *Obs.* Mya may be known by the large, broad, prominent tooth in one valve. In Anatina there is one in each valve, and also accessary pieces, Lutraria has cardinal teeth and a ligamentary pit. Few species of Mya are known. They belong to the northern hemisphere.

MYCETOPO'DA, or Mycetopus. D'Orb. *Fam.* Nayades, Lam. *Descr.* Shell elongated, soleniform, inequivalve, inequilateral, gaping anteriorly; with muscular impressions very complex. Fig. 151, M. solenoides. *Obs.* These shells are said to terebrate like Pholas.

MYA'RIA. Lam. A family belonging to Lamarck's order Conchifera Dimyaria, containing the genera Mya and Anatina. To these may be added other genera enumerated in explanation of figures 69 to 76.

MYOCHA'MA. Stutch. (*Mya and Chama.*) *Fam.* Myaria, Lam. *Descr.* Inequivalve, irregular, attached, sub-equilateral; attached

valve flat, with two marginal, diverging teeth, and one end of a little testaceous appendage fixed between them by a horny cartilage; free valve convex, with umbo incurved, and two very minute diverging teeth, between which the other end of the testaceous appendage is placed; external surface of both valves conforming to the grooves or undulations of the shell to which the specimen is attached; muscular impressions two in each valve; palleal impression with a short sinus. *Obs.* This new genus, of which only one species is known, the M. anomioides from New South Wales, differs from Anomia and Anatina in being attached by the surface of one of the valves, from which circumstance the word Chama is added to its name: the little testaceous appendage bringing it near theMyariæ. Fig. 73, M. anomioides.

MY OCON'CHA. Sow. *(Mya and Concha.) Fam.* Cardiacea, Lam. *Descr.* Oval, equivalve, oblique; umbones terminal; ventral margin rounded; hinge with an external ligament, and one oblique elongated tooth in the left valve; impression of the mantle not sinuated. *Obs.* This fossil genus has the general form of Mytilus or Modiola, but the hinge of the Conchæ generally.

MYOPAR'A. Lea. *(Myoparo*, a piratical oar, galley.) *Fam.* Arcacea, Lam. A genus founded on a minute fossil bivalve shell, somewhat resembling Isocardia in form, but having a series of teeth placed on each side of the umbones. M. costatus, fig. 135.

MYR'TEA. Turt. Venus spinifera, Auct. Lucina spinifera, nonnull.

MYS'CA. Turt. A genus composed of species of Unio, Auct. which are distinguished by having "strong, transverse, notched, cardinal and long lateral teeth." Unio pictorum.

MYTILA'CEA. Bl. The fourth family of Lamellibranchiata, Bl. containing the genera Mytilus and Pinna.

MYTILA'CEA. Lam. A family belonging to the first section of the order Conchifera monomyaria, Lam. containing the genera Modiola, Mytilus, including Dreissina and Pinna.

MY'TILUS. Linn. *Fam.* Mytilacea, Lam. *Descr.* Equivalve, cuneiform, oblique, smooth, with umbones terminal, pointed, and posterior side broad, rounded; hinge linear, with a long, partly internal ligament; muscular impressions two in each valve; that on the posterior side large, irregular; that on the anterior, small; palleal impression irregular. *Obs.* The Linnean genus Mytilus included the Modiolæ, which differ from the Mytili in the rounded anterior side; and the Pinnæ, which are large shells, gaping at the posterior extremity. M. achatinus, fig. 158.

NAS'SA. Lam. A genus of small shells united to Buccinum by some authors, but separated by others, on account of the little tooth-like projection terminating the columella. N. arcularia, fig. 423.

NA'TICA. Lam. *Fam.* Neritacea, Lam. Hemicyclostomata, Bl. *Descr.* Globose, thick, generally smooth; spire short, pointed, with few volutions; aperture semilunar, entire; outer lip thin; columellar lip oblique, nearly straight, callous; umbilicus with a spiral callosity, terminating behind the columella, and sometimes filling up the cavity; operculum shelly in some species, horny in others; epidermis thin, light, semitransparent. *Obs.* The straight, callous, smooth edge of the columella, and the callosity serve to distinguish this genus from Nerita, Neritina, Neritopsis and Helix. Fig. 327, 328.

NANI'NIA. Gray. A genus composed of the planorbicular species of Helix, with large umbilici, included in the sub-genus Helicella, Fer. *Ex.* H. citrina, fig. 280.

NAVICEL'LA. Lam. *(A little ship.) Fam.* Neritacea, Lam. Hemicyclostomata, Bl. *Descr.* Transversely oval, symmetrical, smooth; aperture entire, oval; dorsal surface convex; outer lip thin; inner lip flat, straight edged, spread over the front surface of the body whorls, and sometimes hiding the apex; apex incurved; operculum testaceous, flat, sub-quadrate, with a lateral articulation. *Obs.* This well known genus, of which there are several species, is named Cimber by Montf. The shells are brought from India, the Isle of France and the Molluccas. Fig. 323, N. elliptica.

NAUTELLIP'SITES. Parkinson. Ellipsilites, Montf.

NAUTILA'CEA. Bl. The fifth family of Polythalamacea, Bl. containing Orbulites, Nautilus, Polystomella and Lenticulina.

NAUTILA'CEA. Lam. The sixth family of Polythalamous Cephalopoda, Lam. containing the genera Discorbites, Siderolites, Polystomella, Vorticialis, Nummulites, Nautilus. To these may be added Simplegas and Endosiphonites.

NAU'TILUS. *(A little boat.) Fam.* Nautilacea, Lam. and Bl. *Descr.* Convolute, discoid, chambered, symmetrical; spire partly or entirely concealed by the last whorl; aperture modified by the last whorl, wide, sinuated on the dorsal margin; interior surface pearly; septa dividing the chambers simple; siphon discontinuous. *Obs.* The shell named Nautilus by Pliny, is the Argonauta of later authors, a thin shell, not chambered. The Nautili are known from the Ammonites by the septa being simple, not sinuated as in the latter genus, and in general the volutions of the spire are not visible. Three or four species are known inhabitants of the Pacific Ocean, and Australian Ocean. The fossil species are found in the tertiary, and also in the secondary strata, as low down as Mountain Limestone. Fig. 474, N. pompilius.

NA'YADES. Lam. A family of the order Conchifera Dimyaria, Lam. containing the genera Unio, Hyria, Anodonta, and Iridina, with other genera enumerated in explanation of figures, 141 to 152.

NECTOPO'DA. Bl. The first family of Nucleobranchiata, Bl. containing the genera Carinaria and Firola; the latter is not a shell.

NE'MATOPODA. Bl. The first class of the sub-type Malentozaria, Bl. containing all the mollusca with multivalve shells, except Chiton, and divided into the families Lepadicea, and Balanidea corresponding with Lamarck's Sessile and Pedunculated Cirripedes.

NEMATU'RA. Benson. *Fam.* Turbinacea, Lam. *Descr.* Thin, nearly oval, somewhat compressed from back to front; spire acute, consisting of few rounded whorls; last whorl large, but contracted near the aperture; aperture small, oblique, rounded anteriorly; peritreme continuous, thin; operculum spiral, horny, with few volutions. The distinguishing character of this genus is the contraction of the last whorl near the aperture, in which respect it is nearly resembled by the shell called Cyclostoma lucidum. Two recent and one fossil species, all very minute, are described by Sowerby in Loudon's Magazine of Natural History, New Series. Fig. 305.

NERI'NEA. Defr. *Fam.* Canalifera, Lam. *Descr.* Turrited, oblong, sub-canaliculated, consisting of numerous whorls; aperture with a strong fold on the columella, one on the outer-lip, and one on the inner-lip at the edge of the body whorl. *Obs.* This genus is only found in a fossil state, and is not resembled by any other; the strong, prominent, folds on the three upper angles of the sub-quadrate aperture present a singular appearance in a section. One species has been named N. Hieroglyphus. We give N. Goodhallii, fig. 374.

NERI'TA. Lam. *Fam.* Neritacea, Lam. Hemicyclostomata, Bl. *Descr.* Smooth, or ribbed, semiglobose; spire short, sometimes flat, consisting of few volutions; aperture large, semilunar; outer-lip thick, entire, inner-lip thickened, dentated at the edge, spread over the body whorl, presenting a flattish disc; operculum shelly, spiral, with an appendage, by which it is locked under the sharpe edge of the columella. *Obs.* These marine shells are known from Neritina, by the thickness of the shell, and the want of the thick horny dark coloured epidermis; from Natica, by the flat area produced by the thickened columella. N. Peloronta, fig. 330. N. polita, fig. 329.

NERITA'CEA. Lam. A family of the first order of Trachelipoda, containing the genera Navicella, Neritina, Nerita, and Natica. To which may be added several genera enumerated in explanation of fig. 323 to 333.

NERITI'NA. Lam. *Fam.* Neritacea. Lam. *Descr.* Thin, semiglobose, obliquely oval, smooth, flattish in front; spire short, sometimes depressed, consisting of few rapidly increasing whorls; aperture semicircular; outer-lip thin, sharp; columellar-lip

broad, flat, its inner edge straight, denticulated; operculum testaceous, semicircular, sub-spiral, with an articulating process on the inner edge. *Obs.* This genus of fresh-water shells differs from Nerita in the minuteness of the denticulation of the columella, as well as in the characters mentioned in our observations upon the latter genus. N. spinifera. (Clithon, Montf.) fig. 325. N. virginea, fig. 324. N. perversa, Lam. (Velates, Montf.) fig. 326.

NERITOP'SIS. Gray. *Fam.* Neritacea, Lam. *Descr.* Sub-globose, thick, cancellated; spire short, composed of few rapidly increasing whorls; aperture transverse, sub-orbicular; outer-lip thickened within; columellar-lip thick, rather flat, with a large rounded notch in the centre of its inner edge. *Obs.* This genus most nearly resembles Nerita, from which it differs in the peculiar notch in columella. N. granosa, fig. 331.

NO'BIA. Leach. *Order.* Sessile Cirripedes, Lam. This genus resembles Pyrgoma, Auct. consisting of a conical paries supported upon a funnel-shaped cavity in the madrepore, but differs in its operculum, which consists of two valves; whereas that of Pyrgoma has four. N. grandis, fig. 29.

NODOSA'RIA. Lam. and Orthocera, Lam. have been united by Sowerby, under the first name. *Fam.* Orthocerata, Lam. and Bl. *Descr.* straight chambered, elongated; chambers more or less ventricose; septa perforated by a central siphon. *Obs.* This genus consists only of fossils found in sub-appenine tertiary beds. N. æqualis, fig. 465.

NO'GROBS, Montf. A fossil, appearing from the figure and description to resemble Belemnites.

NO'NION. Montf. A genus of microscopic Foraminifera.

NONIONI'NA. D'Orb. A genus of microscopic Foraminifera.

NOTRE'MA. Rafinesque. A shell described as composed of three integral valves, concerning which De Bl. puts the query "ne seroit-ce pas plutôt une Balanide mal observée?"

NOVACULI'NA. Benson. (*Novacula*, a razor.) *Fam.* Solenacea, Lam. *Descr.* Equivalve, inequilateral, transversely elongated, external ligament communicating with the interior of the shell by an oblique channel; beaks prominent; hinge line nearly straight, with one narrow, curved, cardinal tooth in one valve, entering between two similar teeth in the other; siphonal scar long, extremities of the shell gaping; epidermis thin, light brown, folding over the edges and connecting the dorsal margins. Hab. Jumna Gumti and Ganges. Fig. 63.

NUCLEOBRANCHIA'TA. Bl. The fifth order of the second section of Paracephalophora Monoica, Bl. *Fam.* 1. Nectopoda, containing Carinaria; *Fam.* 2. Pteropoda, containing Atlanta, Spiratella, Argonauta.

NU'CLEUS. (*A kernel.*) Anything around which matter is gathered. The nucleus of shells is the first formed part; the first

deposit of shelly matter to which the successive layers are added; the apex of the spiral cone, of which most shells are composed (see CONE.) The nucleus is formed within the egg, in oviparous; and within the old shell, in viviparous mollusca. It is frequently more transparent and light than the remainder of the shell, and sometimes falls off; when this occurs, the shell is said to be decollated.

NU'CULA. Lam. (*A small nut.*) *Fam.* Arcacea, Bl. and Lam. *Descr.* Equivalve, inequilateral, transverse, covered with an epidermis; hinge linear, with a series of sharp, angulated, teeth, arranged in a line on each side of the umbones and a central, ligamentary pit; muscular impressions two, simple; palleal impression not sinuated. *Obs.* The row of teeth on each side of the umbones, and the ligamentary pit in the centre of the hinge, prevent the pretty little shells of this genus from being confounded with any other. Fig. 137, N. fluviatilis.

NUMMULA'CEA. Bl. The third family of Cellulacea, Bl. consisting of the following genera, Nummulites, Siderolites, Vorticialis, Helicites, Orbiculina, Placentula.

NUM'MULITES. Lam. (*Nummus*, money.) *Fam.* Nautilacea. Lam. *Descr.* Orbicular, convolute, shewing no trace of spire externally; interior divided into cells spirally arranged. *Obs.* The singular fossils composing this genus receive their name from their external resemblance to a battered coin. Fig. 472, N. lenticulina.

NYMPHA'CEA. Lam. A family of the order Conchifera Dimyaria, Lam. containing the genera Sanguinolaria, Psammobia, Psammotæa, Tellina, Tellinides, Corbis, Lucina, Donax, Capsa, Crassina. To which may perhaps be added Grateloupia and Egeria.

OBLI'QUE. (*Obliquus*, lat.) In a slanting direction. The whorls of spiral univalves generally take an oblique direction, in reference to the imaginary axis of the shell. A bivalve is said to be oblique when it slants off from the umbones.

OB'SOLETE. (*Obsoletus*, lat.) Worn out, out of use. This term is used to express a certain indistinctness of particular characters, which sometimes results from the action of sea-water upon unprotected parts of the shell, and sometimes from the deposits of enamel formed in age, and covering the early striæ, ribs, teeth &c. thereby rendering them less acute.

OCEA'NUS. Montf. ("*Corne d'ammon vivant*," Fr.) NAUTILUS Umbilicatus, Auct.

OCTOCE'RA. Bl. The first family of the order Cryptodibranchiata, Bl. containing the genus Octopus. A species of which being found in the Argonauta, or Paper Sailor, has given rise to the long continued controversy as to whether it is really the constructor of the shell, or whether it is a mere pirate, and hav-

ing destroyed the true animal of the Argonaut, has possessed itself of the habitation.

OCTHO'SIA. Ranz. CLITIA, Leach.

OCTOLAS'MIS. Gray. HEPTALASMIS, Leach. (ὀκτο, *octo*, eight; ἔλασμος, *elasmos*, plate.) Fig. 41, O. Warwickii.

OCTO'MERIS. Sow. (ὀκτο, *octo*, eight; μερις, *meris*, part.) *Fam.* Balanidea, Bl. *Order.* Sessile Cirripedes, Lam. *Descr.* Eight principal valves circularly arranged, forming a compressed cone, attached by a jagged base; aperture enclosed by an operculum, consisting of four valves in pairs. *Obs.* The only genus of Sessile Cirripedes agreeing with this in the number of principal valves is Catophragmus, Sow. which is, however, sufficiently distinguished by the several rows of smaller valves by which the principals are surrounded at the base. O. angulosus, fig. 24.

ODON'TIS. v. MONODONTA.

ODOSTO'MIA. Flem. *Descr.* "Shell conical; aperture ovate; peristome incomplete retrally and furnished with a tooth on the pillar." A genus composed of several small species of land shells. Turbo plicatus, spiralis, unidentatus, &c. Mont.

OLI'VA. Auct. (*An olive.*) *Fam.* Convoluta, Lam. Angyostomata, Bl. *Descr.* Oblong, cylindrical, thick, smooth, shining; spire very short, with sutures distinct; aperture elongated, notched at both extremities; outer-lip generally thick; columella thick, obliquely striated, terminated by a tumid, oblique, striated varix; a raised band passing round the lower part of the body whorl. *Obs.* The shells composing this well known genus present a great variety of rich markings and brilliant colours. They are Marine. Fossil species are found sparingly in the London Clay and Calcaire-grossièr. The Ancillariæ are distinguished from this genus by the sutures of the whorls being covered by enamel. O. maura, fig. 457.

OLIVEL'LA. Sw. One of the genera separated from OLIVA by Swainson, and described as having two basal plaits on the columella.

OLYGY'RA. Say. Mentioned by Rang as properly belonging to Helicina. H. neritella, Auct.

OMALAX'IS. Desh. Subsequently BIFRONTIA, Desh. Fig. 354.

ONIS'CIA. Lam. *Fam.* PURPURIFERA, Lam. Entomostomata, Bl. *Descr.* Oblong, sub-ovate, slightly turbinated, cancellated; spire short; aperture elongated; terminating anteriorly in a very short, scarcely recurved canal; outer-lip thickened, denticulated within; inner-lip spread over a portion of the body whorl, granulated. *Obs.* The granulated inner-lip is the principal character by which this genus is distinguished from Cassidaria. In Oniscia the canal is not so produced. O. oniscus, fig. 409.

OPERCULI'NA. D'Orb. A genus of microscopic Foraminifera.

OPER'CULUM. (*A cover, a lid.*) The plate or plates with which many molluscous animals enclose the aperture of their shells, when retired within them. The operculum is sometimes horny as in Trochus; testaceous or shelly, as in Turbo. It is spiral when from a central or sub-central nucleus, the successive layers take a revolving direction, as in Trochus. It is concentric or annular when the outside edge of each layer entirely surrounds the preceding one. It is unguiculated, when the laminæ are placed side by side, as in Purpura. The opercula of multivalve shells are composed of two or four pieces.

ORBI'CULA. Lam. (*Orbis*, an orb.) *Fam.* Brachiopoda, Lam. Palliobranchiata, Bl. *Descr.* Inequivalve, irregular, sub-orbicular compressed, attached by a fibrous substance passing through a fissure near the centre of the lower valve; upper valve patelliform, with the umbo central; muscular impressions four in each valve, semilunar. *Obs.* Discina, Lam. is an Orbicula. Crania is known from this genus by having no fissure in the lower valve, but being attached by its substance. Hipponyx has only two muscular impressions in each valve. O. lævis, fig. 201.

ORBI'CULAR. (*orbiculus*, a little orb.) Of a round or circular form.

ORBICULI'NA. Lam. A genus of microscopic Foraminifera.

OR'BIS. Lea. A minute fossil, described as "orbicular, with flat quadrate whorls and aperture square," in other respects resembling Solarium. O. rotella, fig. 355, 356.

ORBITI'NA. Risso. A genus said to be established upon the nuclei of two land shells.

OR'BULITES. Lam. A genus separated from Ammonites on account of the last volution covering the spire. This is generally considered as characterizing the Nautili, and distinguishing them from the Ammonites; but there are so many gradations, that it seems impossible to maintain the distinction in this respect. Fig. 479, O. crassa; fig. 480, O. discus.

OR'AL. (*Os, oris*, mouth.) Applied to that part of a shell which corresponds with the mouth of the animal, but very seldom used in this sense.

O'RCAS. Montf. Part of Cristellaria, Lam. A genus of microscopic Foraminifera.

OR'THIS. Dalman. (*ὀρθος, orthos*, straight.) *Fam.* Brachiopoda, Lam. one of the generic divisions of Brachiopoda by Dalman, thus described: "Hinge rectilinear, with umbones distant; the larger valve with a transverse, basal, smooth area, with a triangular pit." O. basalis, fig. 207.

ORTHO'CERA. Lam. vide Nodosaria.

ORTHOCE'RATA. Lam. A family of Polythalamous Cephalopoda, Lam. containing the genera Belemnites, (including Hibolithes,) Orthocera, Nodosaria, Hippurites, and Conilites.

To which may be added Conularia, Def. and Amplexus, Sow. Fig. 463 to 470.

ORTHOCER'ATA. Bl. The first family of Polythalamacea, Bl. containing the genera Belemnites, Conularia, Conilites, Orthoceras and Baculites.

ORTHOCERATITES. Auct. *Fam.* Orthocerata, Lam. and Bl. *Descr.* Straight, conical, divided into numerous chambers by simple septa perforated by a central siphon. O. annulata, fig. 464.

OSTEODES'MA. Desh. ANATINA rupicola, Lam.

OSTRA'CEA. (*Ostracées*, Lam.) A family belonging to the second section of the order Conchifera Monomyaria, containing the genera Gryphæa, Ostræa, Vulsella, Placuna, Anomia.

OSTRA'CEA. Bl. The first family of the order Lammellibranchiata, Bl. Containing the genera Anomia, Placuna, Harpax, Ostræa, (including Dendostræa, Sw.) Gryphæa. To these may be added Placunanomia, Brod. and Mulleria.

OS'TRÆA. Linn. (*ostρεον, ostreon*, a bone.) *Fam.* Ostracea, Lam. and Bl. *Descr.* Irregular, inequivalve, generally inequilateral, foliaceous, attached by part of the lower valve; hinge sometimes slightly crenated, destitute of teeth; with the ligament spread upon the lower part of a central triangular area, which is divided into three parts; upper valve much flatter than the lower; muscular impressions one in each valve, large, sub-central, sub-orbicular, with one very minute. *Obs.* The common oyster is the type of this genus, which is abundant in various parts of the world. Those which depart furthest from this type are the Gryphæa, Lam. with a prominent incurved umbo in the lower valve. The Dendostræa, Sw. with margins characterized by strongly angulated folds, throws out arms from the lower valve, by which they are attached to stems of sea-weed, &c. Fig. 180, O. edulis. Fig. 181, O. folium. (Dendostræa, Sw.) Fig. 182, Gryphæa incurva. Fig. 183, Exogyra conica.

O'TIDES. Bl. The first order of Scutibranchiata. Bl. containing the genera Haliotis and Ancylus.

O'TION. (*ωτιον*, a little ear.) *Order.* Pedunculated Cirripedes, Lam. *Descr.* Body sub-quadrate, supported on a fleshy pedicle with a gaping aperture and two posterior auricular tubes; valves five, separate, two semilunar, placed at the sides of the aperture, two terminal very small, one dorsal, minute. *Obs.* Otion differs from Cineras in having two cylindrical posterior tubes, and in the extreme minuteness of three out of five of the valves. O. Cuvierii (Lepas aurita, Lin.) Fig. 43. O. Cuvieri.

OVATE. (*Ovatus.*) Egg-shaped, or oval.

O'VEOLITHES. Montf. A microscopic shell resembling Bulla.

OUTER LIP. v. LABRUM.

O'VULUM. Auct. (*Ovum*, an egg, dim.) *Fam.* Convoluta, Lam. Angyostomata, Bl. *Descr.* Ovate, or fusiform, smooth, convolute; spire covered; aperture narrow, with a canal at each ex-

tremity; outer-lip crenulated, inflected; inner-lip smooth, callous towards the spiral extremity; dorsal area wide, sometimes indistinctly marked. *Obs.* The Ovuli were placed by Linnæus in his genus Bulla, from which they are very remote. They differ from Cypræa in having the inner-lip smooth. We have given representations of their different forms as follows: O. ovum, fig. 440. O. verrucosum (Calpurnus, Montf.) fig. 441. O. Volva, the weaver's shuttle, (Radius, Montf.) fig. 442; and O. gibbosum, (Ultimus, Montf.) fig. 443.

OXYSTOMA'TA. Bl. The fifth family of Asiphonibranchiata, Bl. containing the genus Janthina.

PACHYMY'A. Sow. (*παχὸς*, *pachos*, thick, and *Mya.*) *Fam*, Cardiacea? Lam. *Descr.* Obliquely elongated, equivalve, thick, sub-bilobed, with beaks near the anterior extremity; ligament partly immersed; attached to prominent fulcra. *Obs.* This singular fossil is shaped like Modiola, but the shell being extremely thick and the ligament attached to a prominent fulcrum, it is difficult to know where to place it. Fig. 130, Pachymya Gigas.

PAC'LITES. Montf. A genus composed of species of Belemnites, Auct. described as curved towards the extremity with a pore at the apex and a straight lengthened aperture. *Ex.* B. ungulatus, Bl.

PADOL'LUS. Montf. A genus composed of species of Haliotis, with a strongly marked spiral groove. *Ex.* Haliotis tricostalis, Lam. Fig. 339.

PA'LLEAL IMPRESSION. (*Pallium*, a mantle.) The mark or groove formed in a bivalve shell by the muscular attachment of the mantle, which being always found near the margin of the shell, is sometimes termed the marginal impression. In bivalves with two muscular impressions it passes from one to the other. If in passing it takes a bend inwards posteriorly, it is said to be sinuated, and that part is called by Mr. Gray the Siphonal scar.

PALLIOBRANCHIA'TA. Bl. The first order of the class Acephalophora, Bl. Containing in the first section the symmetrical bivalves Lingula, Terebratula, Thecidea, Strophomena, Plagiostoma, Dianchora and Podopsis; in the second section, the genera Orbicula and Crania.

PALMI'NA. Gray. Differing from Otion, in having but one auricle.

PALUDI'NA. Lam. *Fam.* Peristomata, Lam. Cricostomata, Bl. *Descr.* Varying in form from oval to globose, in some instances oblong, covered with a greenish horny epidermis; spire acute, composed of rounded whorls; aperture ovate; peritreme entire, slightly modified by the last whorl; operculum horny, concentric. *Obs.* The construction of the operculum distinguishes this genus of fresh-water shells from Valvata and Cyclostoma. The Paludinæ are viviparous. Fig. 321, P. Achatina.

PANDO'RA. Brug. *Fam.* Corbulacea, Lam. Pyloridea, Bl. *Descr.* Thin, inequivalve, pearly within, rounded anteriorly, rostrated posteriorly; right valve flat, with two posterior ribs and a narrow plate turned towards the opposite valve; left valve concave, destitute of distinct teeth, with a receptacle for the cardinal tooth and posteriorly elongated rib of the right valve; ligament internal. *Obs.* This well known genus is in no danger of being confounded with any other shell. Fig. 90, P. rostrata.

PANOPÆ'A. *Fam.* Solenacea, Lam. Pyloridea, Bl. *Descr.* Equivalve, inequilateral, oval, gaping at both extremities; hinge with an acute cardinal tooth in each valve, and a large callosity near the umbones supporting the ligament; muscular impressions two, distant, oval; palleal impression with a large sinus. *Obs.* This genus resembles Mya in general appearance, but differs in having an external ligament and a sharp tooth, instead of the broad spoon-shaped process in the hinge of the latter genus. Fig. 65, P. australis.

PANTAS'TERA. Pentamerus. Sow.

PARACEPHALOPH'ORA. Bl. The second class of the type Malacozoaria, Bl. divided into the sub-classes: P. dioica, P. monoica, P. hermaphrodita.

PAR'TULA. Fer. *Fam.* Colimacea, Lam. Auriculacea, Fer. *Descr.* Conical, smooth; spire equal to aperture in length, consisting of few whorls; aperture auriform; outer lip reflected, broad; inner lip reflected, with a slight prominence on the columella. P. australis, fig. 302.

PARMACEL'LA. Cuv. *(A little cell.)* *Fam.* Limacinea, Lam. & Bl. *Descr.* Haliotoid, internal, thin; spire flat, consisting of one or two rapidly increased whorls; aperture as large as the whole shell, with the dorsal margins inflected. *Obs.* This description applies to Parmacella of Cuvier. The shell figured in Sowerby's genera is Cryptella of Webb. Fig. 257, P. Olivieri; Fig. 258, P. Palliolum.

PARMOPHO'RUS. Lam. A genus composed of Emarginula elongata, Auct. and other species of a similarly oblong form. Fig. 242, P. elongatus.

PASITHÆ'A. Lea. A genus formed of some pyramidal shells, described as resembling Melania, but separated from that genus on account of being marine fossils. Fig. 317, P. striata.

PATEL'LA. Linn. *(A dish or platter.)* *Fam.* Phyllidia, Lam. Retifera, Bl. *Descr.* Symmetrical, compresso-conical, nearly regular, oblong or oval; apex sub-central, inclining towards the anterior margin; aperture oval, forming the base of the shell; internal surface smooth; with a muscular impression shaped like a horse-shoe, with the ends bending forwards, encircling and dividing the space all round, except where the interruption occurs, to receive the head of the animal; external surface ribbed,

grooved, striated or banded, radiately. *Obs.* Lottia differs from Patella in the construction of the animal; Siphonaria, in the lateral siphon; and Ancylus, in the oblique twist of the axis, as well as in the nature of the animal. The Patellæ are marine. Fig. 229.

PATEL'LIFORM. (*Patella*, a dish; *forma*, shape.) Shaped like a dish.

PATEL'LOIDEA. Bl. The third family of the order Monopleurobranchiata, Bl. containing the genera Umbrella and Siphonaria.

PATEL'LOIDES. Quoy and Gaimard. Lottia, Gray.

PAVO'NIA. D'Orb. A genus of microscopic Foraminifera.

PAX'YODON. Schum. Hyria, Lam.

PEC'TEN. Brug. (*A comb.*) *Fam.* Pectenides, Lam. Subostracea, Bl. *Descr.* Inequivalve, ribbed longitudinally, nearly equilateral, with a triangular auricle on each side of the umbones; hinge linear, destitute of teeth, having a central pit containing the cartilage; muscular impressions one in each valve, large, sub-central. *Obs.* This genus of beautiful shells, to which the well-known Scallop belongs, contains numerous species, some of which are found in the British seas. The Hinnites Pusio. P. Pusio of some authors, has been separated on account of the irregularity of the external surface of one valve. Fig. 171 to 173.

PEC'TINATED. (*Pecten*, a comb.) Marked in a regular series of ridges.

PEC'TENIDES. Lam. A family belonging to the second section of the order Conchifera, Dimyaria, Lam. containing the genera Pedum, Lima, Plagiostoma, Pecten, (including Decatopecten and Hinnites,) Plicatula, Spondylus and Podopsis.

PECTUN'CULUS. (*Pecten*, dim.) *Fam.* Arcacea, Lam. and Bl. *Descr.* Equivalve, sub-equilateral, orbicular, thick, covered with a velvety epidermis, striated longitudinally; ventral margin denticulated within; hinge semi-circular, with a series of small teeth on each side of the umbones, which are separated by a small triangular disc in each valve bearing the ligament; muscular impressions two in each valve, strongly marked, united by an entire palleal impression. *Obs.* The characters of this genus are so strongly marked that there is no danger of confounding it with any other. It does not contain many species; two or three are British. The fossil species occur in London clay and Calcaire-grossièr. Fig. 134, P. pilosus.

PED'IPES. Adanson. *Fam.* Auriculacea, Bl.; Colimacea, Lam. *Descr.* Sub-globose, longitudinal, thick, striated; spire equal to aperture in length; aperture sub-ovate; peritreme sharp, thickened within, modified by the last whorl; columella with three strong plaits on the inner edge; outer lip with one fold. *Obs.* This genus contains but one or two small, recent species, which

in some respects resemble Auricula, from which it is known by the thickness of its shell, and its globular form. Fig. 299, P. Adansoni.

PE'DUM. (*A shepherd's crook.*) *Fam.* Pectenides, Lam. Subostracea, Bl. *Descr.* Irregular, inequivalve, sub-equilateral, attached by a byssus passing through a sinus in the lower valve; hinge toothless, with a triangular area in each valve, separating the umbones; ligament contained in a groove running across the area; muscular impressions one in each valve, large, sub-orbicular; both valves flat, narrow at the dorsal, broader at the ventral extremities; lower valve with raised edges overwrapping the upper. *Obs.* This singular genus, of which only one species is known, differs from Ostræa, not only in shape and structure, but also in the mode of attachment, that is by a byssus. Fig. 179, P. Spondyloideum.

PEDUN'CULATED. (*Pedunculus*, a little foot.) Attached to external objects by a hollow fleshy tube, called the Peduncle.

PEDUN'CULATED CIRRIPEDES. Lam. An order consisting of molluscs which have multivalve shells, supported on a Peduncle; containing the genera Anatifer, Pollicipes, Cineras, Otion.

PELAGUS. Montf. Composed of species of AMMONITES, which have the spire covered by the last whorl, as in Nautilus, and have an umbilicus. ORBULITES, Bl.

PELO'RUS. Montf. POLYSTOMELLA, Bl. A genus of microscopic Foraminifera.

PELORON'TA. Oken. NERITA *Peloronta*, Auct. Fig. 330.

PEN'EROPLIS. Montf. A genus of microscopic Foraminifera.

PENICIL'LUS. Brug. ASPERGILLUM, Auct.

PENTALE'PAS. Bl. PENTELASMIS, Auct.

PENTA'MERUS. Sow. (Πεντε, *pente*, five; μερις, *meris*, part.) *Fam.* Brachiopoda, Lam. *Descr.* Equilateral, inequivalve; one valve divided by a central septum into two parts; the other by two septa, into three parts; umbones incurved, imperforate. *Obs.* Dalman remarks upon his genus Gypidium, that it is most probably identical with PENTAMERUS, Sow. but rejects the name for two reasons; 1st. That it has already been applied to a class of insects; 2nd. He disputes the fact of the shell being quinquelocular, i. e. not counting the triangular foramen in the hinge of the larger valve as one of the divisions. Fig. 212, 213.

PENTELAS'MIS. Leach. (Πεντε, *pente*, five; ἔλασμα, *elasma*, plate.) *Order.* Pedunculated Cirripedes, Lam. *Descr.* Compressed, conical, composed of five valves; lower lateral pair sub-trigonal; upper lateral pair elongated, sub-quadrate; dorsal valve arcuate; peduncle elongated, smooth. *Obs.* This genus is known from all other genera of the order by the number of valves. Pentelasmis is the genus Anatifera, Lam. Lepas anatifer, Linn. Fossil specimens of this marine genus are found

in the Calcaire-grossièr of Paris, and in other similar beds. Fig. 34, P. lævis.

PER'DIX. Montf. DOLIUM Perdix, Auct.

PERFORA'TION. (*Perforo*, to bore, to pierce.) A round opening, having the appearance of being bored, as in Haliotis, fig. 338. Sometimes the term is applied to an umbilicus which penetrates a shell through the axis to the apex, as Eulima splendidula, fig. 348.

PERIBO'LUS. Brug. A genus founded upon young specimens of Cyprææ, with their outer lips not formed.

PERIOSTRACA. See EPIDERMIS.

PERIPLO'MA. Schum. OSTEODESMA, Desh. RUPICOLA. Fl. de Belvue. ANATINA rupicola, Lam. Fig. 72, P. inequivalvis.

PERISTO'MATA. Lam. A family belonging to the first section of the order Trachelipoda, containing the genera Valvata, Paludina, Ampullaria (including Lanistes, Montf.) Fig. 318 to 322.

PERLAMA'TER. Schum. (*Mother of Pearl.*) MELEAGRINA Margaritifera, Lam. The pearl oyster.

PER'NA. ("*Pernæ concharum generis*, Plin.") *Fam.* Malleacea, Lam. *Descr.* Sub-equivalve, irregular, compressed, foliaceous; hinge straight, linear, composed of a series of transverse parallel grooves containing the cartilage and intermediate spaces bearing the ligament; anterior margin with a sinus for the passage of a byssus; posterior ventral margin oblique, attenuated. *Obs.* This genus is known from Crenatula by the straightness, number and regularity of the grooves in the hinge and the sinus, for the passage of the byssus. Fig. 166, P. Ephippium.

PERSI'CULA. Schum. A genus formed of MARGINELLA Persicula, Auct. and other species having the spire concealed. Fig. 438.

PER'SONA. Montf. (*Mask.*) A genus composed of TRITON *Anus*, Auct. and similar species. Fig. 401.

PETRI'COLA. Lam. (*Petrus*, a stone; *cola*, an inhabitant.) *Fam.* Lithophagi, Lam. *Descr.* Equivalve, inequilateral, transversely ovate or oblong, rather irregular; anterior side rounded, posterior side more or less attenuated, slightly gaping; hinge with two cardinal teeth in each valve; muscular impressions two in each valve; palleal impression entire; ligament external. *Obs.* The Petricolæ are found in holes made by the animal in rocks, Madrepores, &c. They may be known from Saxicava, by the regularity of their form and the teeth on the hinge. Fig. 91, 92.

PHARA'MUS. Montf. LENTICULINA, Bl. A genus of microscopic Foraminifera.

PHARE'TRIUM. König. (φαρετρεὼν, *pharetreon*, a quiver.) *Descr.* A testaceous body composed of two conical sheaths, one within the other, perforated at the apex, and joined together near the oral margin. P. fragile, fig. 3.

PHASIANEL'LA. Auct. (*Phasianus*, a pheasant.) *Fam.* Turbinacea, Lam. Ellipsostomata, Bl. *Descr.* Smooth, oval, variegated; aperture entire, oval; outer-lip thin; inner-lip thin, spread over a portion of the body whorl; columella smooth, rather thickened towards the base; operculum horny, spiral within; testaceous, incrassated without. *Obs.* The shells composing this genus are richly marked with lines and waves of various and delicate colours; and, if the genus be restricted to those species which are smooth, and which have a thick shelly operculum, we may regard it as well defined; but there are some spirally-grooved species of TURBO, Linn. which from their oval shape have been considered as belonging to this genus. Such species should not, in our opinion, be retained in this genus; they belong to Littorina. P. variegata, fig. 367.

PHI'TIA. Gray. CARYCHIUM, Müller.

PHOLADA'RIA. Lam. A family of the order Conchifera Dimyaria, Lam. containing the genera Pholas and Gastrochæna. To which may be added, Pholadomya and Galeomma.

PHOLADOMY'A. Sow. (*Pholas and Mya.*) *Fam.* Pholadaria, Lam. *Descr.* Thin, rather hyaline, equivalve, inequilateral, ventricose, posteriorly gaping, elongated, anteriorly short, rounding; ventral margin rather gaping; hinge with an elongated pit, and lateral plate in each valve; ligament external, short; muscular impressions two in each valve, rather indistinct; palleal impression with a large sinus. *Obs.* The only recent species of this genus is from the Island of Tortola. Several fossil species occur in rocks of the Oolitic series. Fig. 57, P. candida.

PHO'LAS. Auct. (Φωλεω, *pholeo*, to lie hid in a cavity.) *Fam.* Pholadaria, Lam. ADESMACEA, Bl. *Descr.* Transverse, oblong, equivalve, inequilateral, imbricated, gaping on both sides, the anterior hiatus being generally the largest, although sometimes nearly closed, with the dorsal margin surmounted with one or more laminar accessary valves; hinge callous, reflected, with a long curved tooth protruding from beneath the umbones in each valve. *Obs.* This genus of marine shells, dwelling in holes formed in rocks, wood, &c. is easily distinguished from any other nearly approaching genus by the curved, prominent, rib-like tooth. Fig. 55, Pholas Dactylus; 56, P. papyracea.

PHOLEO'BIUS. Leach. Part of the genus SAXICAVA, Auct.

PHOLADIDÆ'A. Leach. PHOLAS papyracea, Auct. fig. 56, Remarkable for the cup-shaped process at the posterior extremity.

PHONE'MUS. Montf. A genus of microscopic Foraminifera.

PHOR'US. Montf. TROCHUS *agglutinans*, Auct. Fig. 360. Remarkable for the adhesion of little pebbles, dead shells, &c. to the outer edge of the whorls which are taken up in the course of the growth of the shell. From this circumstance they are called "Collectors."

PHOS. Montf. *Fam.* Purpurifera? Lam. *Descr.* Turrited, thick, cancellated, varicose; spire pointed, not very long; aperture rounded or oval; outer-lip having internal ridges; columella with an oblique fold; canal short, forming externally a raised varix. *Obs.* The raised external surface of the canal, brings this genus near Buccinum, while, in general appearance, most of the species more nearly resemble Murex. They have, however, no true varices on the whorls, but merely raised bars. Fig. 416, P. senticosus.

PHYLLIDIA'NA. Lam. A family belonging to the first section of the order Gasteropoda, Lam. containing the genera Phyllidia, not a shell, Chiton, Chitonellus, Patella, (including Ansates.) To which may be added Lottia, Gray.

PHY'SA. Lam. A genus formed of reversed species of Limnæa, Auct. Fig. 310, P. castanea.

PI'LEOLUS. Cookson. *(A little cap.) Fam.* Neritacea, Lam. *Descr.* Patelliform, with the apex sub-central, straight. In the lower disc, or under surface, the centre of which is rather raised and cushion-shaped, is placed the lateral, narrow semilunar aperture, with the outer-lip marginated and the inner-lip crenulated. *Obs.* This interesting genus is only known in a fossil state. Two species are found in the upper layer of Oolite, above the Bradford Clay. The spire, although internal, connects this genus in some degree with Neritina. Still there is no danger of confounding it with any other. Fig. 332, P. plicatus.

PINNA. Auct. *(The fin of a fish.) Fam.* Mytilacea, Lam. *Descr.* Equivalve, inequilateral, oblique, wedge-shaped, thin, horny; umbones terminal; hinge rectilinear without teeth; anterior margin sinuated, to admit the passage of a byssus; posterior margin truncated, gaping, muscular impressions two in each valve; posterior, large, sub-central; anterior small, terminal, sometimes double. *Obs.* The beautiful large shells of which this genus is composed, are possessed of a large flowing, silky byssus, of which gloves and hose have been manufactured. They have received their name from their resemblance to the pectoral fins of some fish. Some of them attain very large dimensions, and measure two feet in length. Some species are smooth, although the greater number are imbricated or crisped outside.

PILEOP'SIS. Lam. Capulus, Fer. Fig. 240.

PIRE'NA. Lam. A genus of freshwater shells, rejected by De Ferussac and other authors, who place Lamarck's two first species with Melanopsis, and his two last with Melania. Fig. 316. P. terebralis.

PI'SUM. Megerle. Pisidium, Leach.

PISI'DIUM. A genus of river shells separated from Cyclas, principally on account of a difference in the animal. The species of

Pisidium, however, are more inequilateral than the Cyclades, and the posterior, or ligamentary side of the latter is the longer, while that of the former is the shorter. Fig. 112.

PITONEL'LUS. Montf. Rotella, Auct.

PLACEN'TA, Schum. Placuna, Auct.

PLACU'NA. Brug. (πλακῦς, *placus*, a cake.) *Fam.* Ostracea, Lam. and Bl. *Descr.* Compressed, thin, equivalve, nearly equilateral, planorbicular, fibrous, foliaceous; hinge flat, with two diverging ribs in one valve, corresponding with two diverging grooves in the other, containing the cartilage; muscular impressions one, large, circular, central, and one or two smaller in each valve. *Obs.* The two best known species of this well defined genus are the P. Placenta, commonly called the Moon Shell, and the P. sella, called the Saddle Oyster, from the anterior margin being turned up so as to resemble a saddle. The genus may be known from all others by the diverging costa on the hinge. Placunanomia is the only genus resembling it in this respect; but this is easily distinguished by a perforation through the shell. Fig. 184, P. Placenta.

PLACEN'TULA. Schum. A genus of microscopic Foraminifera.

PLACUNANO'MIA. Sow. (*Placuna and Anomia.*) *Fam.* Ostracea, Lam. and Bl. *Descr.* Thin, foliaceous, compressed, sub-equivalve, sub-equilateral, irregular, flat near the umbones, plicated towards the margins, attached by a bony substance passing through a fissure in the lower valve; hinge flat, with two diverging ribs in one valve, corresponding with two diverging grooves, containing the cartilage, in the other; muscular impressions one in each valve, central, sub-orbicular. *Obs.* The specimens from which Broderip described this singular genus, were brought by Mr. Cuming from the gulf of Dulce in Costa Rico. Another species is from one of the Phillippine Islands. They partake of the characters of several genera, having the hinge of Placuna, and being attached by a process passing through the lower valve, like Anomia. P. Cumingii, Fig. 189.

PLAGIOS'TOMA. Sow. (πλαγιος, *plagios*, oblique; στωμα, *stoma*, mouth.) *Fam.* Pectinides, Lam. Palliobranchiata, Bl. *Descr.* Sub-equivalve, inequilateral, oblique, auriculated on each side of the umbones, radiately striated; hinge straight in one valve, with a triangular notch in the other. *Obs.* This genus, one species of which is spinous, and another smooth, is only known in a fossil state. In Bath Lyas and Chalk, &c. Fig. 176, P. Spinosum.

PLANAR'IA. Brown. A minute fossil genus resembling Planorbis in appearance, but differing in being a marine shell, and having a reflected outer lip. P. nitens, fig. 312, from Lea.

PLANAX'IS. Lam. (*Plana*, flat and axis.) *Fam.* Turbinacea, Lam. Entomostomata, Bl. *Descr.* Sub-ovate, pyramidal, solid; spire measuring $\frac{1}{2}$ or $\frac{1}{3}$ of the axis, consisting of few whorls;

columella contiguous to the axis, flat, truncated and separated from the outer lip by a short canal; outer-lip thickened and denticulated within; operculum horny, thin, with a terminal nucleus. *Obs.* A genus of small marine shells. Fig. 365, P. sulcata.

PLANORBI'CULAR. (*Planus*, flat; *orbis*, an orb.) Flat and circular, as Ammonites, fig. 478.

PLANOR'BIS. (*Planus*, flat; *orbis*, an orb.) *Fam.* Lymnacea, Lam. and Bl. *Descr.* Thin, horny, convolute, planorbicular, nearly symmetrical: spire compressed, concave, consisting of numerous gradually increasing whorls, which are visible on both sides; aperture transversely oval, or nearly round; peritreme entire; outer-lip thin; inner-lip distinct, spread over a part of the body whorl. *Obs.* This is a genus of shells abounding in ditches and stagnant pools, which is not liable to be confounded with any other, excepting the discoidal species of Ampullaria, which may be distinguished by the aperture being broadest in the opposite direction. Fossil species are found in the fresh-water strata of the Isle of Wight, and the neighbourhood of Paris. Fig. 311, P. corneus. All the species are reversed shells.

PLANORBU'LI'NA. D'Orb. A genus of microscopic Foraminifera.

PLANULA'CEA. Bl. The second family of Cellulacea, Bl. containing the genera Renulina and Peneroplis.

PLANULA'RIA. Def. PENEROPLIS, Bl. A genus of microscopic Foraminifera.

PLANULI'NA. D'Orb. A genus of microscopic Foraminifera.

PLAN'ULITES. Lam. DISCORBITES, of the same author. A genus of microscopic Foraminifera.

PLAT'YLE'PAS. Leach. (πλατυς, *platus*, wide; λεπας, *lepas*.) *Order.* Sessile Cirripedes, Lam. Balanidea, Bl. *Descr.* Conical, depressed, consisting of six valves, each divided internally by an angular plate jutting from the centre; (like the buttress of a wall;) operculum consisting of four valves in pairs. *Obs.* This genus differs from Balanus, Coronula, &c. in the internal structure of the valves. Blainville's description of the genus Chthalamus partly agrees with this. Fig. 19.

PLATI'RIS. Lea. (πλατυς, *platus*, wide; ιρις, *iris*.) A genus including several species of Nayades, referred to IRIDINA, of Lam. The genus Platiris is divided into two sub-genera: Iridina, species which have crenulated hinge margins; I. Ovata, I. exotica, Spatha, Lea; those with smooth, or very slightly crenulated hinges, S. rubens, S. Solenoides, Mycetopus, D'Orb. Fig. 151.

PLEC'TROPHORUS. Fer. (πλῆκτρον, *plectron*, spur; φορέω, *phoreo*, to carry.) A genus consisting of one or two species of small testaceous appendages fixed on the posterior extremity of a species of slug. P. corninus, fig. 260.

PLEIODON. Conrad. Iridina. Lam.

PLEKOCHEI'LUS. Guild. Auricula caprella, Lam.

PLEUROBRAN'CHUS. Cuv. (Πλευρα, *pleura*, the side; *Branchiæ*, gills.) *Fam.* Semiphyllidia, Lam. Sub-aplysiacea, Bl. *Descr.* Internal, thin, haliotoid, slightly convex towards the spiral apex; aperture entire. *Obs.* A very light shell, delicately coloured, resembling Aplysia, but differing in the integrity of the margin. Fig. 232, P. membranaceus.

PLEURORHYN'CHUS. Phillips. Πλευρα, the side; ρυγχος, *rynchus*, a beak.) A genus founded upon a very singular species of Cardium, distinguished by the short, anterior side, and the elongation of the hinge line into auricular processes, which are truncated at the extremities. C. Hibernicum, from Black marble rock of Cork, which is vulgarly called Asses-hoof. C. elongatum (Sow. Min. Con. vol. 1. 82.) may probably formpart of this genus.

PLEURO'TOMA. Auct. (Πλευρα, the side; τομη, *tome*, a slit.) *Fam.* Canalifera, Lam. Siphonostomata, Bl. *Descr.* Fusiform, thick, generally ribbed or striated transversely; aperture oval, terminating anteriorly in an elongated canal; outer-lip thin, with a fissure near its union with the spire; columella smooth, nearly straight. *Obs.* This genus, which nearly resembles Fusus in other respects, may be known by the notch in the outer lip. The species differ in the length of the canal. Those with the short canals and dilated outer lip have been separated under the name Clavatula. Fig. 379, 380, P. marmorata, 381, P. strombiformis, (Clavatula.)

PLEUROTOMA'RIA. Defr. (Derived as Pleurotoma.) *Fam.* Turbinacea, Lam. *Descr.* Turbinated, spiral; aperture subquadrate, with rounded angles; outer lip with a deep slit near its junction with the spire. *Obs.* This genus, which is only known in a fossil state, abounds in inferior Oolite, Oxford clay, and casts are found in a limestone bed in Norway. The Scissurellæ differ in being very minute shells, and are not so Trochiform as the species of Pleurotomaria. P. reticulata, fig. 341.

PLICA'CEA. Lam. A family of the order Trachelipoda, Lam. containing the genera Tornatella and Pyramidella, to which may be added Monoptygma.

PLI'CATED. (*Plico*, to fold.) Folded. Applied to spiral plaits on the columella of some shells. *Ex.* Voluta, fig. 433. Also to the angular bendings in the margins of some bivalve shells. *Ex.* Dendostræa, fig. 181.

PLICA'TULA. Lam. (*Plicatus*, folded.) *Fam.* Pectinides, Lam. Sub-ostracea, Bl. *Descr.* Irregular, sub-equivalve, sub-equilateral, attached by a small part of the surface of one valve, strongly plicated; umbones separated by a small, external, ligamentary area; hinge with two cardinal teeth in each valve, two approximate in one valve, received between two distant in the other; cartilage placed between the cardinal teeth; muscular

impressions one in each valve. *Obs.* The cardinal teeth, resembling those of Spondylus, distinguish this genus from other Ostracea. Fig. 178, P. gibbosa.

PNEUMONOBRANCHI'A. Lam. The second section of the order Gasteropoda, Lam. containing the family Limacinea, fig. 256 to 263.

PODOP'SIS. Lam. This genus appears to have been described from specimens of a species of Spondylus, with the triangular disc broken out so as to present a similarly shaped foramen, which was supposed to afford a passage for a large byssus.

POLINI'CES. Montf. A genus composed of NATICA mammilla, and other similar species, with mammillated spires, and the umbilicus filled with enamel. Fig. 327.

POL'LIA. Gray. A genus proposed to include several species of shells belonging to the Canalifera of Lamarck. They differ from Triton in having no external varices; from Purpura, in having crenulated columellæ. The inner edge of the outer-lip is also crenulated. Fig. 415. P. articulata, Fusus. Lam. Triton undosus, Lam. belongs to this genus.

POLLI'CIPES. Auct. (*Pollex*, a thumb's breadth; *pes*, a foot.) *Order.* Pedunculated Cirripedes, Lam. *Descr.* Conical, compressed consisting of numerous valves, mostly in pairs, three or four pairs forming the principal part of the shell, and surrounded at the base by two or three rows of smaller valves, supported on a scaly, short pedicle. *Obs.* This description will be found to exclude Scalpellum and Smilium, the valves of which are more equal. The P. Mitellus, Auct. (fig. 37*) has been separated as a genus Mitellus by some authors, and it certainly is very different from P. polymerus, Fig. 37, and P. cornucopia.

POLLON'TES. Montf. MILIOLA, Bl. A genus of microscopic Foraminifera.

POLYBRANCHIA'TA. Bl. (Πολυς, *many*; *Branchiæ*, gills.) The fifth family of the order Lammellibranchiata, Bl. containing the genera Arca, Pectunculus and Nucula, which have a series of small teeth on the hinge.

POLYDON'TES. Montf. (Πολυς, *polus*, many; οδος, *odos*, tooth.) A species of Helix, shaped like CAROCOLLA, and having a number of teeth in the aperture.

POL'YGONUM. Schum. (Πολυς, *polus*, many; γωνια, *gonia*, an angle.) A genus composed of species of TURBINELLUS, Auct. which have large, continuous costæ, so as to present the appearance of many sided shells. T. polygonus, fig. 383.

POLYLE'PAS. Bl. (Πολυς, *polus*, many; λεπας, *lepas*, Linn.) SCALPELLUM, Auct.

POLY'LEPAS. Klein. CORONULA Diadema, Auct.

POLYMORPHI'NA. D'Orb. A genus of microscopic Foraminifera.

POLYPHE'MUS. Montf. A genus composed of species of Achatina, Auct. which have elongated apertures, short spires and an undulation in the outer lip. P. glans, fig. 288.

POLYPLAXIPHO'RA. Bl. The second class of the sub-type Malentozoaria, Bl. containing the genus Chiton.

POLYSTOMEL'LA. Lam. A genus of microscopic Foraminifera.

POLYTHALAMA'CEA. Bl. (Πολυς, *many*; θαλαμος, *thalamos*, chambers.) The third order of Cephalophora, Bl. divided into the families Orthocerata, Lituacea, Cristacea, Ammonacea, Nautilacea, Turbinacea, Turriculacea, all of which contain genera of chambered shells.

POLYTHALA'MIA. Lam. The first division of the order Cephalopoda, Lam. containing the following families of chambered, shells, viz. Orthocerata, Lituacea, Cristacea, Sphærulacea, Radiolata, Nautilacea, Ammonacea. Fig. 463 to 484.

POLYXE'NES. Montf. A genus of microscopic Foraminifera.

PORCELLA'NA. Adanson. Marginella, Auct.

PORODRA'GUS. Montf. A genus composed of species of Belemnites, placed by De Blainville in the section characterized as swelled near the apex, and straightened towards the base.

POSIDO'NIA. Bronn. A genus founded on the cast of a bivalve shell, common on Schists from Dillemburg.

POSTE'RIOR. (*After*, *behind*,) The posterior part of a bivalve shell is that on which the ligament is placed, and from which the umbones generally turn, The intestinal canal of the animal is fixed near the ventral margin on that side, and the mouth, or entrance to the stomach, is placed near the dorsal margin on the opposite or anterior side. When the palleal impression is sinuated the sinus is on the posterior side of the shell. The posterior extremity of the aperture of a univalve shell, is that nearest the spire. The posterior is marked *p* in fig. 119 and 387.

POSTERO-BA'SAL MARGIN, of a bivalve shell, is the posterior side of the margin opposite the hinge.

POSTERO-DOR'SAL MARGIN, is the posterior side of the hinge.

POTAMOPHI'LA. Sow. (Ποταμις, *potamis*, river; Φιλιος, *philios*, choice.) *Fam.* "Conques fluviatiles," Lam. *Descr.* Thick, equivalve, inequilateral, trigonal, covered with a greenish brown, smooth, horny epidermis; hinge thickened, broad, with one central, notched, cardinal tooth in one valve, and two in the other, with indistinct lateral teeth; ligament large, supported on prominent fulcra; muscular impressions two in each valve, suborbicular. *Obs.* The name given to this shell refers to its place of abode, being found in rivers. It is the Venus sub-viridis of some authors, although being a freshwater shell, and having an incrassated hinge, and a smooth, thick, epidermis, it is most dis-

tinct from that genus. It is described by Bowdich under the name Megadesma, on account of its large ligament, and by Lamarck, under that of Galathæa, a name previously used by him for a genus of Crustacea. P. radiata, fig. 115. Megadesma appears to be the preferable name, since it has the right of priority over Potamophila.

POTAMOMY'A. A genus of freshwater shells resembling Corbula, and probably belonging to the Myariæ.

POTAM'IS OR POTA'MIDES. A genus of freshwater shells resembling CERITHIUM in the characters of the aperture; but which may be known from that genus by the thick, horny epidermis, with which they are coated. P. muricata, fig. 377, (Cerithium, Sow.) We think that these shells should be placed near MELANIA.

PRI'SODON. Schum. Hyria, &c. Auct. Fig. 144.

PRODUC'TA. (*Productus*, produced.) *Fam.* Brachiopoda, Lam. *Descr.* Equilateral, inequivalve, thick, striated; one valve generally convex, with the margin inflected, produced; the other valve flat, or slightly convex, with the margin reflected; hinge rectilinear, transverse. *Obs.* The peculiarity in this genus, from which it derives its name, is the drawing out and overwrapping of the anterior margins of the valves. The genus is only known in a fossil state. Species occur in Mountain Limestone, and Transition Limestone of older date. P. depressa, fig. 206.

PRO'TO. Defr. A fossil shell resembling TURRITELLA, but having a spiral band reaching to the centre of each valve. P. terebralis, Bl.

PSAMMOCO'LA. (ψαμμος, *psammos*, sand; *cola*, inhabitant.) Bl. PSAMMOBIA and PSAMMOTÆA, Lam. *Fam.* Nymphacea, Lam. *Descr.* Transverse, oblong, slightly gaping at both ends; hinge with two cardinal teeth in one valve, one in the other; ligament supported upon a prominent fulcrum; muscular impressions two in each valve, sub-orbicular, distant; palleal impression with a large sinus; epidermis thin. *Obs.* The genus thus described includes PSAMMOTÆA of Lamarck, which, according to him, only differs in the number of teeth, and which he says are but "Psammobies dégenerées." The difference appears to be accidental. This genus differs from Tellina in not having a posterior fold in the margin. Fig. 100.

PSILOSTOM'ATA. Bl. The third family of Aporobranchiata, Bl. containing no genera of shells.

PTERO'CERAS. Lam. (Πτερον, *pteron*, a wing; κερας, *ceras*, horns.) *Fam.* Ailées, Lam. *Descr.* Turrited, oval, ventricose, thick, tuberculated; spire short; aperture oval, terminating in a lengthened canal at both extremities; outer lip thickened, expanded, produced into horn-shaped, hollow, thickened spires, with an anterior sinus apart from the caudal canal. *Obs.* This

genus, containing the shells commonly called Devils-claws, Gouty Scorpions, Spiders, &c. is distinguished from Strombus by the digitations of the outer lip. No fossil species are known. Fig. 405, P. aurantiaca.

PTERO'PODA, Lam. (*πτερον*, *pteron*, a wing; *πυς*, *pus*, a foot.) The first order of the class Mollusca, Lam. consisting of molluscs whose organs of locomotion consist of a pair of wing-shaped fins. This order contains the genera Hyalæa, Clio, Cleodora, Limacella, Cymbulia, and Pneumoderma. To which may be added other genera enumerated in explanation of fig. 220 to 226.

PTERO'PODA. Bl. Second family of Nucleobranchiata. Bl. containing the genera, Atlanta, Spiratella and Argonauta.

PULLAS'TRA. Sow. *Fam.* Conques Marines, Lam. *Descr.* Equivalve, ovate or oblong, transverse, inequilateral; hinge with three diverging, cardinal teeth in each valve, notched at the terminations; muscular impressions two in each valve; palleal impression having a large sinus; ligament external, partly hidden by the dorsal margin. *Obs.* This genus includes the Venerirupes of Lamarck, and several species of his Veneres. Fig. 120. P. textile.

PULMONOBRANCHIA'TA. Bl. The first order of the first section of Paracephalophora monoica, containing the families Limnacea, Auriculacea, Limacinea.

PULVINI'TES, Defr. (*Pulvinus*, a cushion.) *Fam.* Malleacea, Lam. *Descr.* Sub-equivalve, inequilateral, compressed, thin, slightly gaping posteriorly; one valve flat, the other rather concave; hinge linear, short, divided into perpendicular grooves; muscular impressions two, one sub-central, the other above it nearer the hinge. *Obs.* This fossil shell is imperfectly known, and it is difficult to give a sufficient reason for separating it from Perna. It comes from the Baculite Limestone of Normandy. Fig. 170, P. Adansonii.

PUNCTUREL'LA. Lowe. CEMORIA, Leach.

PU'PA. Auct. *Fam.* Colimacea, Lam. Limacinea, Bl. *Descr.* Cylindrical, generally ribbed; spire long, obtuse, composed of numerous, slowly increasing whorls; aperture sub-quadrate, rounded anteriorly, entire; outer-lip thickened, columella plaited. *Obs.* This genus is composed of land shells very variable in form, differing from Bulinus in the numerous, slowly increasing whorls of the spire, and in the plicæ on the columella; and from Clausilia in the want of a clausium. P. Uva, fig. 291.

PUR'PURA. Auct. (*The shell-fish from which purple is taken*, Plin.) *Fam.* Purpurifera, Lam. Entomostomata. Bl. *Descr.* Oval or oblong, thick; spire for the most part short, sometimes rather longer; external surface generally sulcated, granulated, tuberculated or muricated; aperture large, oval, somewhat dila-

ted, emarginated anteriorly; outer-lip crenated, acute: columella flattened; operculum horny with the nucleus lateral, thin towards the columella. *Obs.* True Purpuræ are to be found in the Lamarckian genera Buccinum, Ricinula, and others. They may be generally distinguished by the flatness of the columellar lip, and by the short canal or emargination, which is not reflected, and raised as in Buccinum. The species are very numerous and very variable in form, inhabiting the seas of temperate and tropical climates. The animals secrete a purple liquor which has formerly been used advantageously for dying. Fig. 414, P. persica.

PURPURI'FERA. Lam. (*Purpura*, purple; *fero*, to carry.) A family belonging to the second section of Lamarck's order Trachelipoda, containing the genera Cassidaria, Cassis, Ricinula, Purpura, Monoceros, Concholepas, Harpa, Dolium, Buccinum, Eburna, Terebra. To which may be added other genera enumerated in explanation of fig. 407 to 429.

PYLORI'DEA. Bl. The ninth family of the order Lammellibranchiata, Bl. divided into: Section 1. Genera of bivalves with internal ligaments, Pandora, Thracia, Anatina, Mya, Lutricola. Section 2. Ligament external, Psammocola, Soletellina, Solen, Sanguinolaria, Solenocurtus, Solenimya, Panopæa, Glycimeris, Saxicava, Byssomya, Rhomboides, Hiatella, Gastrochæna, Clavagella, Aspergillum.

PYRAMIDEL'LA. Lam. (*A little pyramid.*) *Fam.* Plicacea, Lam. Auriculacea, Bl. *Descr.* Pyramidal, smooth, polished; spire long, pointed, composed of numerous whorls; aperture small, modified by the last whorl, rounded anteriorly; outer-lip somewhat expanded; columella tortuous, with several folds. *Obs.* This is a genus of pretty little marine shells. Fig. 342.

PYRA'ZUS. Montf. Potamis, Brogniart.

PYREL'LA, Sw. (*A little pear.*) A genus consisting of Turbinellus Spirilla, Auct. and other similar species, having a long channel, a pyriform outline, and one strong plait at the base of the columella, the apex of the spire enlarged. P. spirillus, fig. 384. The proper term would be Spirilla.

PYRI'FORM. (*Pyrum*, a pear; *forma*, shape.) Shaped like a pear, i. e. large and rounding at one end, and gradually tapering at the other. *Ex.* Pyrula, fig. 390.

PYR'GO. Defr. A genus of microscopic Foraminifera.

PYR'GOMA. Auct. (Πυργος, *pyrgus*, a tower.) *Order.* Sessile Cirripedes, Lam. *Descr.* Composed of a single conical, hollow paries with a small aperture enclosed by an operculum of four valves, and supported upon a cup-shaped base. *Obs.* The genera into which Leach has divided this genus are Pyrgoma, Adna, and Megatrema; his genera Nobia and Savignium differ in having but two valves to the operculum. Pyrgoma differs from

Creusia in having the body of the shell, i. e. the parietal cone simple, not divided into valves. P. fig. 31.

PYR'GOPOLON. De Montfort's figure of this genus appears as if it had been drawn from the nucleus of a Belemnite.

PY'RULA. Lam. *(A little pear.) Fam.* Canalifera, Lam. Siphonostomata, Bl. *Descr.* Thin, oblong, pyriform, ventricose towards the spire, gradually tapering towards the anterior of the aperture; spire short, consisting of few volutions; aperture wide, terminating in a long, narrow, open canal; outer-lip thin, columella smooth, elegantly tortuous. *Obs.* The above description includes all the true Fig-shells, which present a most graceful form; the contour partaking of the peculiar curve, called by painters, the line of beauty. P. Ficus, fig. 390.

QUINQUELOCULIN'A. D'Orbigny. A genus of microscopic Foraminifera.

QUADRATE. (*Quadratus*, square.) Squared or quadrated. Applied to straight lines meeting at right angles, in the contour of shells or their parts.

RA'DICATED. (*Radix*, a root.) Attached, and as it were rooted by means of a fibrous byssus.

RA'DIOLA'TA. Lam. A family belonging to the order Cephalopoda, Lam. containing the genera Rotalina, Lenticulina, Placentula.

RA'DIOLITES. Lam. A genus of Rudistes, differing from Sphærulites, in both valves being more conical.

RA'DIUS. Montf. A genus composed of Ovulum Volva, fig. 442. and other similar species, having a long, attenuated canal at each extremity.

RA'DIX. Montf. A genus consisting of species of Lymnæa, having a short spire and wide aperture. *Ex.* L. aperta, fig. 309.

RAMPHIDO'MA. Schum. Pollicipes, Auct.

RA'MOSE. (*Ramosus*, branched.) Spread out into branches. *Ex.* Murex inflatus, fig. 395.

RANEL'LA. (From *Rana*, a frog.) *Fam.* Canalifera, Lam. Siphonostomata, Bl. *Descr.* Oval, or oblong, depressed, thick, with two rows of continuous varices, skirting the outline, one on each side; spire rather short, pyramidal, acute; aperture oval, terminating in a canal at each extremity; outer-lip thickened within, crenulated, or denticulated, forming an external varix; inner-lip spread over a portion of the body whorl. *Obs.* The shells composing this well defined-genus, are for the most part covered with tubercules and granulations, and from the colour and squat shape of some species, have been likened to frogs. The Ranellæ are mostly inhabitants of the East Indian Seas. The few fossil species known, occur in London clay. The two continuous rows of varices skirting the spire, distinguish this genus from Triton, which it nearly ap-

proaches, and into which, some species run by imperceptible gradations. Fig. 393, 394.

RAPAN'US. Schum. A genus consisting of species of PYRULA, Auct. which are thin, much inflated, with short canals. Fig. 389, P. papyracea.

RAPHANIS'TER. Montf. A species of madrepore, described as a shell.

RECTILIN'EAR. (*Rectus*, right; *linea*, a line.) In a straight line. *Ex.* The hinge of Byssoarca Noæ, fig. 132.

RECURVED. (*Re*, back; *curvo*, to bend.) Turned backwards, The term applied to symmetrical, conical shells, is used to express that the apex is turned towards the posterior margin, as in Emarginula, fig. 241.

REFLECTED. (*Reflecto*, to fold back.) Turned, or folded backwards. *Ex.* The edge of the outer lip in Bulinus, fig. 282, is *reflected*, while that of Cypræa, fig. 445 to 450, is *inflected*.

RE'NIFORM. (*Ren*, a kidney; *forma*, shape.) Shaped like a kidney. *Ex.* The aperture of Ampullaria, fig. 318.

RENULI'NA. Lam. A genus of microscopic Foraminifera.

RE'OPHAX. Montf. A genus of microscopic Orthocerata. Bl.

RE'PENT. (*Repens*, creeping.) A term applied to those shells, which being attached by the whole length of their shell, give the idea of creeping or crawling. *Ex.* Vermilia, fig. 7.

RETI'FERA. Bl. The first family of the order Cervicobranchiata, Bl. containing the genus Patella.

REVERSE, or SINISTRAL shells. Are those in which the aperture is on the left side of the shell, when it is held with the mouth downwards, and towards the observer, *Ex.* Balæa, fig. 296. Attached bivalves are said to be reversed when the left valve is free instead of the right; a circumstance which occurs sometimes in the genus Chama.

RHINOCU'RUS. Montf. A genus of microscopic Foraminifera.

RHIZO'RUS. Montf. A genus described from a microscopic shell, appearing to be a cylindrical Bulla.

RHOMBOI'DAL. (ῥομβοειδος, *romboeidos*.) Having a rhombic form, i. e. four sided; two sides meeting at acute, two at obtuse angles. Conchologists are not very strict in the application of this term; for, indeed, a perfect rhomboidal figure could not be found among all the testaceous productions of the sea.

RHOMBOI'DES. Bl. A genus described as resembling Byssomya, in the shell, but differing in the animal. *Mytilus rugosus*, Gmelin. Hypogæa barbata, Poli.

RHOM'BUS. Montf. (ρομβος, *rombos*, a rhomb.) A genus consisting of species of Conus, having a rhomboidal or quadrilateral form and a coronated spire. *Ex.* Conus nocturnus, fig. 459.

RICIN'ULA. Lam. (Resembling the seed-vessel of the *Ricinus*.) *Fam.* Purpurifera, Lam. Entomostomata, Bl. *Descr.* Sub-ovate,

thick, tuberculated; spire short; aperture narrow, terminating anteriorly in a short canal; outer-lip thickened, denticulated within, digitated without; columella spread over a portion of the body whorl, granulated. *Obs.* This interesting genus is composed of some neat little shells allied to Purpura, from which they are distinguished by the finger-like branching of the outer lip, and the granulations of the columella. Fig. 413, R. Horrida.

RIGHT. See DEXTRAL.

RI'MULA. Defr. A genus consisting of a minute species of Emarginula, Auct. which has a fissure near the margin, but not reaching it. R. Blainvillii, fig. 243.

RIMULI'NA. D'Orb. A genus of microscopic Foraminifera.

RIS'SOA. Freminville. *Fam.* Ellipsostomata, Bl. Melaniana; Lam. *Descr.* Oblong, turrited, acuminated; spire long, consisting of numerous whorls; aperture round or oval, pointed posteriorly, dilated anteriorly; outer-lip slightly thickened, emarginated; operculum horny. *Obs.* The Rissoæ are small white marine shells, considered by some authors as resembling Melaniæ, but placed by Sowerby near the Scalariæ. They are from the shores of the Mediteranian. Fig. 346, R. reticulata.

ROBULI'NA. D'Orbigny. A genus of microscopic Foraminifera.

ROL'LUS. Montf. A genus composed of CONUS Geographus, fig. 462, and other species, rather cylindrical in form, and having a coronated spire.

ROSALI'NA. D'Orb. A genus of microscopic Foraminifera.

ROSTELLA'RIA. Lam. (From *rostrum*, a beak.) *Fam.* Alatæ, Lam. Siphonostomata, Bl. *Descr.* Turrited, fusiform, thick, smooth or ribbed; aperture oval, terminating anteriorly in a long canal, posteriorly, in a channel running up the spire; outer lip dilated, thickened, sometimes digitated, running up all or part of the spire, with a sinus near the anterior canal; inner lip smooth, spread over part of the body whorl and part of the spire. *Obs.* Hippochrenes is the name given by Montfort to the fossil species, which have the outer lip simple and very much dilated. R. curvirostris, fig. 402.

ROTA'LIA. Lam. A genus of microscopic Foraminifera.

ROTEL'LA. Lam. *(A little wheel.) Fam.* Turbinacea. Lam. *Descr.* Orbicular, generally smooth, shining; spire conical, depressed, short; aperture subtrigonal; outer lip thin, angulated near the centre; inner lip spread over the under surface of the whorls, forming a thickened orbicular disc. Operculum horny, orbicular, spiral, with numerous whorls. *Obs.* The pretty little shells thus described, are found in seas of tropical climates. They are distinguished from other genera by their lenticular form and the orbicular callosity of the under surface. Fig. 357, R. vestiaria.

RUDIS'TES. Bl. A family of the order Conchifera Monomyaria, Lam. containing the genera Sphærulites, Radiolites, Birostrites, Calceola, Discina, Crania.

RUDIS'TES. Lam. The second order of the class Acephalophora, Bl. containing the genera Sphærulites, Crania, Hippurites, Radiolites, Birostrites and Calceola.

RUDOL'PHUS. Schum. MONOCEROS, Auct.

RUPELLA'RIA. Fl. de Belvue. An unfigured shell, placed by de Blainville in a division of the genus Venerirupis.

RU'PICOLA. Fl. de Belvue. Described by De Blainville as an equivalve, terebrating species of ANATINA. A. rupicola, Lam.

SA'GITTA. (*An arrow.*) Ancient name for Belemnites.

SALPA'CEA. Bl. The second family of the order Heterobranchiata, Bl. containing no genera of shells.

SANDALIN'A. Schum. CREPIDULINA, Lam. A genus of microscopic Foraminifera.

SANGUINOLA'RIA. Lam. (*Sanguis*, blood.) *Fam.* Nymphacea, Lam. Pyloridea, Bl. *Descr.* Equivalve, inequilateral, transverse, sub-ovate, rounded anteriorly, subrostrate posteriorly, compressed, thin, covered with a shining epidermis, gaping at the sides; hinge with two cardinal teeth in each valve, and an external ligament supported upon a prominent fulcrum; muscular impressions, two in each valve, lateral, irregular; palleal impression with a large sinus. *Obs.* This description is made to exclude some of Lamarck's species of Sanguinolaria, such as S. occidens, and S. rugosa, which are Psammobiæ; and to include others which he has left out. The Sanguinolariæ are sub-rostrated posteriorly, while the Psammobiæ are sub-quadrate and have a posterior angle. Fig. 98, S. rosea.

SARACENA'RIA. Defr. A genus of microscopic Foraminifera.

SAVIG'NIUM. Leach. A genus of Sessile Cirripedes, described as composed of four valves soldered together, and a convex bivalve operculum; the ventral and posterior valve on each side being soldered together, in other respects resembling PYRGOMA. Fig. 30.

SAXICA'VA. Auct. (*Saxum*, a stone; *cava*, a hollow.) *Fam.* Lithophagi, Lam. Pyloridea, Bl. *Descr.* Transverse, irregular, generally oblong, inequilateral, sub-equivalve, gaping anteriorly; ligament external; muscular impressions two, lateral; palleal impression interrupted, not sinuated; hinge, when young, with sometimes two or three minute, obtuse, generally indistinct cardinal teeth, which become obsolete when full grown. *Obs.* Several genera have been founded only upon the difference between the young and old shell of the same species of this genus. The Saxicavæ are found in the little hollows of rocks, in cavities on the backs of oysters, of roots of sea weeds, &c. S. rugosa, Fig. 94.

SCA'LA. Klein. SCALARIA, Auct.

SCALARIA. Auct. *Fam.* Scalariana, Lam. Cricostomata, Bl. *Descr.* Turrited, oval or oblong; spire long, composed of rounded, sometimes separate whorls, surrounded by regular concentric ribs; aperture oval, peristome reflected, continuous, entire. *Obs.* The typical species of this genus, commonly called the Wentletrap, S. pretiosa, is celebrated for the beautiful appearance caused by the numerous ribs encircling the whorls, and formerly produced an immense price in the market. There are many smaller species, some of which are equally elegant. Fig. 351, S. Pallasii, Kiener.

SCALARIA'NA. Lam. A family belonging to the first section of the order Trachelipoda, Lam. containing the genera Vermetus, Scalaria, Delphinula. To which may be added other genera enumerated in expl. of fig. 345 to 352.

SCALPEL'LUM. *(A little knife or lancet.) Order.* Pedunculated Cirripedes, Lam. *Descr.* Flat, quadrated, acuminated, composed of thirteen valves, one dorsal, arcuated; one pair apical, acuminated; one pair ventral; two pair basal, ventral and dorsal; two pair lateral, small, sub-quadrate; pedicle scaly. *Obs.* This genus and Smilium, are the only pedunculated Cirripedes having thirteen valves; in the latter genus, which we think should be united to this, the valves are somewhat differently placed, and the pedicle is said to be smooth. Fig. 35, S. vulgare.

SCA'PHA. Klein. *(A boat.)* NAVICELLA, Auct.

SCAPHAN'DER. Montf. BULLA lignaria, *Auct.* Fig. 251.

SCAPHEL'LA. Sw. *(A little boat.)* A genus composed of VOLUTA undulata, maculata, zebra, Junonia, Auct. and other similar species, thus described: "Fusifom, invariably smooth, polished; spiral whorls gradually diminishing in size; apex obtuse, but rarely thickened and distorted; pillar generally gibbous in the middle, with from four to six unequal plaits; margin of the outer-lip thickened."

SCA'PHITES. *(A boat.) Fam.* Ammonacea, Lam. and Bl. *Descr.* Convolute, chambered, closely related to the AMMONITES, from which it differs, in the last whorl being eccentrically straightened, and lengthened, and again incurved towards the extremity. Only known in a fossil state. Fig. 481, S. æqualis.

SCA'RABUS. Montf. *(Scarabæus*, a kind of beetle.) *Fam.* Colimacea, Lam. Auriculacea, Fer. *Descr.* Oval, slightly compressed, smooth, with somewhat raised varices; spire equal in length to the aperture, pointed, consisting of numerous whorls; aperture ovate, rounded anteriorly, pointed posteriorly, modified by the last whorl; outer-lip sub-reflected, with several prominent folds on the inner edge; inner-lip spread over a portion of the body whorl, with several prominent folds. *Obs.* The shells of this genus are found, like Auriculæ, in marshy places. C. im-

brium is said to have been found in the tops of mountains by Captain Freycinet. Fig. 299*, S. imbrium.

SCHIZODES'MA. Gray. A genus composed of species of MACTRA, Auct. with the ligament placed in an external slit. Fig. 81, Mactra Spengleri.

SCISSUREL'LA. D'Orb. (*Scissus*, cut.) *Fam.* Turbinacea, Lam. *Descr.* Sub-globose, umbilicated, with a spiral groove terminating at the margin of the outer-lip in a slit; spire short; aperture oval, modified by the last whorl; outer-lip sharp, with a deep slit near the spire. *Obs.* This genus, consisting of small shells, is known from Pleurotomaria by the shortness of the spire; the latter genus being Trochiform. Fig. 340, S. elatior.

SCO'LYMUS. Swainson. A genus composed of Turbinellus Scolymus Auct. and other similar species, described as "beset with blunt spines; canal short; spire pointed; inner-lip thickened." *Ex.* T. cornigerus. Fig. 382.

SCOR'TIMUS. Montf. A genus of microscopic Foraminifera.

SCROBI'CULATED. (*Scrobiculus*, a little ditch or furrow.) Having small ditches or furrows marked on the surface.

SCROBICULA'RIA. Schum. Species of LUTRARIA, Auct. of a rounded shape. LIGULA, Leach.

SCUTEL'LA. Brod. (*A little shield.*) *Fam.* Phyllidiana, Lam. *Descr.* Shaped like Ancylus, shining within; apex posteriorly inclined, central, involute; muscular impressions two, oblong, ovate, lateral; aperture large, ovate. *Obs.* This genus is intermediate between Ancylus and Patella; while the aspect of the beak reminds us of Navicella.

SCUTIBRANCHIA'TA. Bl. (*Scutus*, a shield; *branchiæ*, gills.) The third order of Paracephalophora Hermaphrodita, Bl. containing patelliform, but not symmetrical shells, and divided into the families Otidia and Calyptracea.

SCU'TUS. Montf. (*A shield.*) PARMOPHORUS *elongatus*, Lam.

SECU'RIFORM. (*Securis*, an axe; *forma*, shape.) Hatchet-shaped. *Ex.* Pedum, fig. 179.

SEDENTA'RIA. Lam. The third order of the class Annelides, Lam. Divided into the families Dorsalia, Maldania, Serpulacea, Amphitrites. Fig. 1 to 13.

SEGMENTI'NA. Flem. NAUTILUS *Lacustris*. Montagu Test. Brit.

SEMILU'NAR. Half-moon-shaped.

SENOCLI'TA. Schum. CINERAS, Leach.

SEPTA'RIA. Lam. See TEREDO.

SEPTA'RIA. Fer. NAVICELLA, Auct.

SEP'TUM. (*Lat.*) an enclosure; applied to the thin plate in the interior of Crepidula, fig. 239; also to the plates dividing the chambers of multilocular shells.

SER'APHS. Montf. TEREBELLUM convolutum, Lam.

SER'PULA. Lam. (*A little serpent.*) *Fam.* Serpulacea, Lam. *Descr.* Tubular, narrow, pointed at the apex, gradually widening towards the aperture, attached irregularly, sometimes spirally twisted, imbricated, keeled, or plain; aperture generally round, with the edge simple, or angulated by the termination of external ribs or keels. *Obs.* This description is intended to include the genera Serpula, Spirorbis, Vermilia, and Galeolaria, &c. The Serpulæ abound in all seas, on rocky shores at any time covered by water, attached to every kind of marinæ substance, whether moveable or stationary. The fossil species occur in almost all strata. Fig. 4 to 7.

SERPULA'CEA. Lam. The fourth family of the order of Sedentary Annellides, containing the genera Spirorbis, Serpula, Vermilia, Galeolaria, Magilus.

SESSILE CIRRI'PEDES. Lam. (*Sessilis*, low, dwarfish.) An order of Cirripedes, consisting of those which are attached by the base of the shells, containing the genera Tubicinella, Balanus, Coronula, Acasta, Pyrgoma, Creusia. To which may be added some other genera enumerated in explanation of figures 14 to 33.

SI'DEROLITES. Lam. A genus of microscopic Foraminifera.

SIGARE'TUS. Lam. *Fam.* Macrostomata, Lam. *Descr.* Suborbicular, oblique, haliotoid, thick; spire depressed, consisting of two or three rapidly increasing whorls; aperture wide, entire, modified by the last whorl, the width exceeding the length; columella tortuous; inner-lip spread thinly over part of the body whorl; epidermis thin. *Obs.* This genus is distinguished from Natica, by the width of the aperture and the want of the umbilical callosity. It may be known from Stomatia and Stomatella, by the texture, which, in Sigaretus, is never pearly as in Stomatia. Sigaretus is partly an internal shell. Fig. 334, S. concavus.

SI'LIQUA. Megerle. (*A husk or pod.*) LEGUMINARIA, Schum. A genus composed of species of Solen, Auct. which have an internal rib. Fig. 61, Solen radiatus.

SILIQUA'RIA. Brug. *Fam.* Cricostomata, Bl. Dorsalia, Lam. *Descr.* Tubular, rugose, spiral near the apex, irregularly twisted near the aperture, with a longitudinal fissure radiating from the apex, and proceeding through all the whorls and windings; aperture rounded. *Obs.* This genus may be known from Serpula, by the longitudinal slit. S. Muricata. Fig. 1, S. anguina.

SIM'PLE. (*Simplex*, Lat.) Single, entire, uninterrupted, undivided.

SIM'PLEGAS. Bl. (*Simplex*, simple; γαστηρ, *gaster*, belly.) A genus described as being discoidal, and having the spire uncovered like AMMONITES, but having the chambers divided by simple septa, like Nautilus. *Obs.* The septa of the shell named

Simplegas, by De Montfort, are evidently sinuous, according to his figure. Fig. 475, S. sulcata.

SI'NISTRAL. (*Sinister*, left.) On the left side. A sinistral shell is a *reversed* one. The sinistral valve of a bivalve shell, may be known by placing the shell with its ligamentary or posterior part towards the observer; the sides of the shell will then correspond with his right and left sides.

SI'NUS. Sinuosity. (*Sinus*, Lat. a winding or bay.) A winding, or tortuous excavation. The sinus in the outer-lip of Strombus, fig. 406; and that in the muscular impression of Venus, fig. 119, will be indicated by the letter *s*.

SI'PHON. (Σιφον, *siphon*.) A pipe or tube. A shelly tube passing through the septa of chambered shells. *Ex.* Spirula, fig. 471, and all the Ammonacea.

SIPHONA'RIA. Sow. (Σιφον, *siphon*.) *Fam.* Phillidiana, Lam. Patelloidea, Bl. *Descr.* Patelliform, depressed, inclining to oval, ribbed; apex nearly central, obliquely inclining towards the posterior margin; muscular impression partly encircling the central disc, but interrupted in front where the head of the animal reposes, and at the side, by a siphon or canal passing from the apex to the margin. *Obs.* This siphon, which in some species is very distinct, serves to distinguish this genus from Patella. S. sipho, fig. 231.*

SIPHONOBRANCHIA'TA. Bl. (*Siphon* and *Branchiæ*, gills.) The first order of Paracephalophora Dioica, Bl. Divided into the families Siphonostomata, Entomostomata, and Angyostomata.

SIPHONOSTOM'ATA. Bl. Σιφον, *siphon*; στομα, *stoma*, mouth.) The first family of Siphonobranchiata, Bl. containing the genera Pleurotoma, Rostellaria, Fusus, Pyrula, Fasciolaria, Turbinellus, Columbella, Triton, Murex, Ranella.

SIS'TRUM. Montf. Ricinula, Auct.

SKE'NEA. Flem. A genus including some species of Euomphalus and Cirrus, Sow.

SMI'LIUM. Leach. *Fam.* Pedunculated Cirripedes. *Descr.* Thirteen pieces, ten of which are in pairs, lateral, subtriangular; two anterior, dorsal and ventral incurved, triangular; one posterior dorsal, linear; all smooth; pedicle hairy. *Obs.* This genus is distinguished from Pentelasmis by the number of its valves, and from Scalpellum, by the hairy pedicle. S, Peronii, fig. 36.

SOLA'RIUM. Auct. (*A terrace or gallery.*) *Fam.* Turbinacea, Lam. Goniostomata, Bl. *Descr.* Discoidal beneath, conical above, with a wide umbilicus, the spiral margin of which is angulated and crenulated; aperture trapezoidal, peritrême thin, sharp; columella straight; operculum horny, sub-spiral. *Obs.* The Solarium Perspectivum, is commonly called the Staircase

Trochus, from the angulated edges of the whorls being seen through the umbilicus, which reaches to the apex, and presents the appearance of a winding gallery. The species are not numerous, they belong to tropical climates. A few fossil species occur in the tertiary formations. Fig. 353, S. perspectivum.

SOLDA'NIA. D'Orb. A genus of microscopic Foraminifera.

SO'LEN. Auct. (*A kind of shell-fish*, Plin.) *Fam.* Solenacea, Lam. Pyloridea, Bl. *Descr.* Bivalve, transversely elongated, subcylindrical, equivalve, very inequilateral, gaping at both extremities; umbones terminal, close to the anterior extremity; hinge linear, with several small cardinal teeth, and a long external ligament; muscular impressions distant, anterior tongue-shaped, placed behind the cardinal teeth, posterior irregular, sub-ovate; palleal impression long, bilobed posteriorly. *Obs.* The above description of the genus Solen, is framed so as to admit only those species which are commonly called Razor shells, with the umbones terminal, and the anterior muscular impression behind them. Some of the other Lamarckian Solenes, will be found in the genus Solenocurtus, Bl. Fig. 60, 61.

SOLENA'CEA. Lam. A family of the order Conchifera Dimyaria, Lam. containing the genera Solen, Panopæa, Glycimeris, and others enumerated in explanation of figures 60 to 68.

SOLENEL'LA. Sow. (*Solen*, dim.) *Fam.* Arcacea, Lam. *Descr.* Oval, equivalve, subequilateral. compressed, covered with a thin, shining, olive green epidermis; hinge with three or four anterior, and numerous sharp posterior, lateral teeth, arranged in a straight line; muscular impressions two, lateral; palleal impression with a large sinus; ligament external, prominent, elongated. *Obs.* This genus partakes of the characters of the genus Nucula, and of the family Solenacea. A fews pecimens of the only species known (S. Norrisii, fig. 138,) were dredged by Mr. Cuming, at Valparaiso.

SOLENIMY'A. Auct. (*Solen* and *Mya.*) *Fam.* Mactracea, Lam. Pyloridea, Bl. *Descr.* Equivalve, inequilateral, transversely oblong, rounded at the extremities, with the umbones near the posterior side, covered with a shining brown epidermis, extending beyond the edges of the shell; hinge without teeth; ligament partly internal, placed in the margin of an oblique, flattish, posterior rib; muscular impressions two, distant, lateral. *Obs.* Solenimya differs from Solenocurtus and the Solens, in having the posterior part of the shell shortest; in the internal ligament; and in being destitute of teeth. It resembles Glycimeris, but is not incrassated. Fig. 68.

SOLENOCUR'TUS. Bl. (*Solen* and *Curtus*, short.) *Fam.* Pyloridea, Bl. Solenacea, Lam. *Descr.* Oval, Elongated, equivalve, sub-equilateral, with the edges nearly straight and parallel, and the extremities rather truncated; umbones not very prominent,

sub-central; hinge with or without two or three rudimentary cardinal teeth; ligament prominent, placed upon thick callosities; muscular impressions two, distant, rounded; palleal impression straight, with a deep sinus. *Obs.* Distinguished from the true Solenes by the central position of the umbones, and an internal bar partly across the shell. S. radiata, fig. 61.

SOLETEL'LINA. Bl. SANGUINOLARIA *radiata*, S. livida, S. Diphos, Sow. and similar species.

SPA'THA. Lea. A sub-genus of IRIDINÆ, composed of I. rubens and I. nilotica, which have not distinctly crenulated margins. S. solenoides, Mycetopus, D'Orb. Fig. 151.

SPHÆ'NIA. Turt. A genus composed of a little shell resembling Saxicava in general appearance, but having a spoon-shaped process on the hinge of one valve. S. Binghamii, fig. 96.

SPHÆRULA'CEA. Bl. The first family of Cellulacea, consisting of the following genera of microscopic Foraminifera, viz. Miliola, Melonia, Saracenaria, Textularia.

SPHÆRULA'CEA. Lam. The fourth Family of Cephalopoda, Lam. Containing the genera Miliola, Gyrogona, Melonia.

SPHÆROIDI'NA. D'Orb. A genus of microscopic Foraminifera.

SPHÆ'RULITES. Lam. (*Sphæra*, a sphere.) *Fam.* Rudistes, Lam. and Bl. *Descr.* Orbicular, inequivalve, irregularly foliated outside; lower valve cup-shaped, depressed; upper valve nearly flat, like an operculum. *Obs.* These fossils are not regarded as shells by many conchologists. S. foliacea, fig. 193.

SPINES. (*Spina*, a thorn.) Thin pointed spikes.

SPINCTER'ULUS, Montf. LENTICULINA, Bl. A genus of microscopic Foraminifeaa.

SPI'RAL. (*Spira*, a spire.) Revolving outwards from a central apex or nucleus, like the spring of a watch. A shell or an operculum may be spiral without being produced into a pyramid.

SPIRATEL'LA. Bl. LIMACINA, Lam. fig. 224

SPIRE. (*Spira*, a winding compass.) The cone or pyramid produced in a non-symmetrical univalve, by its oblique revolution downwards from the nucleus or apex, The spire, in description, includes all the volutions above the aperture.

SPI'RIFER. Sow. (*Spira*, a spire; *fero*, to bear.) *Order.* Brachiopoda, Lam. *Descr.* Inequivalve, transverse, equilateral; hinge linear, straight, widely extended on both sides of the umbones, which are separated by a flat area in the upper and larger valve; this area is divided in the centre by a triangular pit, for the passage of the byssus; interior with two spirally convolute appendages. *Obs.* This genus, which is only known in a fossil state, is distinguished from Terebratula externally, by the flat area in one valve, internally, by the singular spiral process from which it derives its name. Fig. 214, 215.

SPIRO'GLYPHUS. Dand. A genus consisting of a species of

SERPULA, Auct. which makes a groove for itself in the surface of univalve shells. Serpula spirorbis, var. Dillwyn, Fig. 8.

SPIROLI'NA. Lam. A genus of microscopic Foraminifera.

SPIROLOCULI'NA. D'Orb. A genus of microscopic Foraminifera.

SPIROR'BIS. Lam. A genus composed of species of SERPULA, Auct. which are coiled round in a spiral disc, like a snake at rest. S. nautiloides, fig. 5, is the common little white shell found upon the shell of lobsters.

SPI'RULA. (*Spira*, a winding compass.) *Fam.* Lituolata, Lam. Lituacea, Bl. *Descr.* Convolute, smooth, symmetrical, discoid, with parallel, unconnected whorls, divided into numerous chambers by transverse septa; siphon continuous. *Obs.* This pretty little shell is partly internal, only a part of it being visible when on the animal. Fig. 471.

SPI'SULA. Gray. A genus composed of Mactra fragilis and other similar species which have the ligament sub-external, marginal, not separate from the cartilage; with the posterior lateral teeth double and single. M. fragilis, fig. 80.

SPON'DYLUS. Lam. (*A shell-fish*, Ancients.) *Fam.* Pectenides. Lam. Sub-ostracea, Bl. *Descr.* In-equivalve. sub-equilateral, irregularly foliaceous and spinose, auriculated, denticulated at the margins, attached by the lower and deeper valve; hinge rectilinear, with two prominent teeth in each valve, locking into corresponding cavities on the opposite valve; umbones separated by a broad, elongated triangular disc in the lower valve; ligament contained in a groove, dividing the triangular area in the centre; muscular impressions, one in each valve, sub-central, sub-orbicular. *Obs.* This genus is remarkable for the richness and beauty of the spines and foliations, which adorn the external surface of most of the species, the splendid colours by which many of them are varied, and the natural groupings formed by their attachment to each other. Fig. 177, and Frontispiece.

SPOR'ULUS. Montf. A genus of microscopic Foraminifera.

SQUA'MOSE. (*Squama*, a scale.) Scaly, covered with scales, as the pedicle of Pollicipes Mitellus. Fig. 37.*

STOMATEL'LA. v. STOMATIA.

STOMA'TIA. Lam. (στομα, *stoma*, mouth.) *Fam.* Macrostomata. Lam. *Descr.* Sub-orbicular, oblong, auriform, variegated without, iridescent within; spire depressed; aperture entire, very wide, oblique; peritreme uninterrupted. *Obs.* This genus is known from Haliotis, by being destitute of the series of holes; is distinguished from Sigaretus, by the substance of the shell, the latter being internal, never pearly. Our description includes STOMATELLA, Lam. The Stomatiæ are marine, and belong to the East Indies and New Holland. Fig. 335, S. Phymotis.

STRAPAROL'LUS. Mont. A genus containing some species of Helix, Auct.

STREPTAX'IS. Gray. *Fam.* Colimacea, Lam. *Descr.* Ovate or oblong; when young sub-hemispherical, deeply umbilicated, with rapidly enlarging whorls. At length the penultimate whorl is bent towards the right and dorsal side of the axis, and the umbilicus becomes compressed, and often nearly closed. The mouth lunulate, the edge slighty thickened and reflected, and often with a single tooth on the outer-side of the inner-lip. *Obs.* This genus of land-shells is separated from Helix, on account of the excentricity of the penultimate whorl. S. contusa, fig. 269.

STRI'ATED. (*Stria*, a groove.) Marked with fine grooves or lines.

STRIGOCEPH'ALUS. Defr. PENTAMERUS, Sow? GYPIDIA, Dalman?

STROM'BUS. Linn. *Fam.* Alatæ, Lam. Angyostomata, Bl. *Descr.* Oblong, turrited, rather ventricose, thick; spire solid; aperture elongated, terminating posteriorly in a short canal, and anteriorly in an emargination or truncated canal; outer-lip when young, thin; when full grown, thickened and expanded, lobed at the spiral extremity, sinuated anteriorly near the caudal canal. *Obs.* This well known genus includes some species of immense size, commonly called Conch shells. Strombus is distinguished from Rostellaria, by the notch in the outer-lip, which in the latter genus, is close to the canal. Fig. 406, S. pugilis.

STROPHOME'NA. Rafinesque. ORTHIS, Dalman.

STROPHOS'TOMA. Deshayes. A fossil shell, in some degree resembling Anostoma, having the aperture reflected towards the spire. *Fam.* Colimacea, Lam.

STRUTHIOLA'RIA. (*Struthio*, an Ostrich.) *Fam.* Canalifera, Lam. *Descr.* Oblong, turrited, thick; spire turrited, composed of several angulated whorls; aperture oval, sub-quadrated, oblique; outer-lip thickened, reflected, advancing in the centre, receeding towards the extremities; inner-lip thickened, expanded over the columella and part of the body whorl. *Obs.* This singular genus, consisting of three or four recent species, is named "Pied d'Autruche," by the French, on account of some resemblance in the outer-lip to the foot of the ostrich. Fig. 391, S. straminea.

STY'LIFER. Brod. (*Stylus*, a style; *fero*, to bear.) *Descr.* Thin, pellucid, turbinated; apex a little out of the perpendicular; aperture wide anteriorly, gradually narrowing towards the spiral extremity, where it terminates acutely. *Obs.* This is a genus of small, transparent shells, found burrowing in the rays of Starfish. There are but two or three species at present known, one of which is elongated like Terebra, the other nearly globular. Fig. 12. Stylifer astericola.

SUB. (*Under.*) Used as a prefix to signify *nearly*. Thus a bivalve shell, the valves of which are nearly alike, would be described as *sub*-equivalve.

SUB-APLYSI'ACA. Bl. The first family of the order Monopleurobranchiata, Bl. containing several genera of Mollusca without shells, and the genus Pleurobranchus.

SUB-MYTILA'CEA. Bl. The sixth family of Lamellibranchiata, Bl. containing the genera Anodon, Unio, and Cardita.

SUB-OSTRA'CEA. Bl. The second family of Lamellibranchiata, Bl. containing the genera Spondylus, Plicatula, Hinnites, Pecten, Pedum, Lima.

SUB-SPI'RAL. Not sufficiently spiral to form a complete volution.

SU'BULA. Bl. A genus composed of TEREBRA MACULATA, Auct. and other similar species, which are more ventricose than most of the Terebræ. Fig. 428.

SU'BULATE. (*Subula*, a kind of bodkin used by shoemakers.) Applied to shells that are long and pointed as Terebra. Fig. 427, 428.

SUCCIN'EA. Drap. (*Succinum*, amber.) *Fam.* Colimacea, Lam. Limacinea, Bl. *Sub-genus.* Cochlohydra, Fer. *Descr.* Ovate, rather elongated; aperture large, entire, longitudinal; spire short; outer-lip thin, continuous with the thin, sharp-edged columella; inner-lip spread over a part of the body whorl. *Obs.* The shells belonging to this genus of partly amphibious mollusca, are distinguished from Lymnæa, by not having a fold in the columella. The S. amphibia, is of a bright amber colour. Fig. 265, 266.

SUL'CATED. (*Sulcatus*, Lat.) Having grooves or furrows.

SU'TURE. (*Sutura*, Lat.) A seam, stitch, joining together. Applied particularly to the line which marks the joining of the whorls of a spire.

SYMME'TRICAL. (συν, *syn*, similar; μετρον, *metron*, proportion.) Both sides alike. *Ex.* Patella, fig. 229. Ammonites. Fig. 478.

SYMPHYNO'TA. Lea. A genus of Nayades, in which Mr. Lea proposed to include such species of the genus Unio, the valves of which are connate, or united at the dorsal margin. We believe that this distinction as a genus, has been abandoned by its author. The fact is, that all the Uniones are Symphynote when in a young state. In Unio Alatus, fig. 147, and Dipsas plicatus, fig. 142, it will be observed the valves have not separated at the dorsal edge, but are broken lower down.

TA'PES. Schum, PULLASTRA, Sow.

TEC'TUS. Montf. A genus composed of species of TROCHUS, having elevated, conical spires, and columella notched or truncated by a spiral fold.

TEL'EBOIS. Montf. A genus of microscopic Foraminifera.

TELESCO'PIUM. Montf. CERITHIUM *Telescopium*, Auct.

TEL'LINA. Auct. *Fam.* Nymphacea, Lam. Conchacea, Bl. *Descr.* Sub-equivalve, inequilateral, compressed, rounded anteriorly, sub-rostrated posteriorly, with the posterior ventral margin flexuous; hinge with two cardinal and generally two lateral, teeth, in each valve; muscular impressions, two in each valve, remote; palleal impression with a large sinus. *Obs.* The irregular fold in the posterior margin, distinguishes this genus from others, which it nearly resembles. It is composed of some bivalves of great beauty and variety. Fig. 105, T. radiata. 106, T. lingua-felis.

TELLINI'DES. *Fam.* Nymphacea, Lam. *Descr.* Sub-equivalve, inequilateral, transverse, compressed, rounded anteriorly, slightly beaked or angulated posteriorly; hinge with two cardinal teeth in each valve, and one lateral tooth in one valve, very near the cardinal teeth. Muscular impressions, two, distant; palleal impression with a large sinus. *Obs.* This genus is distinguished from Tellina, in having but one lateral tooth near the cardinal teeth. Fig. 107, T. rosea.

TENUIPEDES. (*Tenuis*, slender; *pedes*, feet.) The second section of the order Conchifera Dimyaria, divided into the families Mactracea, Corbulacea, Lithophaga, Nymphacea.

TERA'CLITA. Schum. CONIA, Auct.

TEREBEL'LUM. (*Terebra*, an augur?) *Fam.* Convolutæ, Lam. Angyostomata, Bl. *Descr.* Smooth, slender, oblong, sub-cylindrical; spire obtuse, short, sometimes hidden; (Seraphs, Montf.) Aperture long, narrow posterior, wider anteriorly; outer-lip slightly thickened, truncated, unconnected at the base with the columella; inner-lip thin, smooth, nearly straight, spread over a portion of the body whorl, continued in a ridge above the sutures of the spire. *Obs.* Montfort has separated the fossil species, with hidden spires, under the name Seraphs. (T. convolutum, Lam.) Only one recent species is known, of which there are several varieties, one spotted, one marked with subspiral lines, a third in patches. Fig. 451, T. convolutum. Fig. 452, T. subulatum.

TERE'BRATING SHELLS (*Terebro*, to pierce.) are those which reside in holes pierced in rocks, wood, &c. by means of some corrosive secretion of the animal. *Ex.* Pholas, Teredo, &c.

TER'EBRA. (*An augur*, a piercer.) *Fam.* Purpurifera, Lam. Entomostomata, Bl. *Descr*, Subulate, elongated, pointed, turrited; spire long, consisting of numerous whorls; aperture small, terminating in a short, reflected canal; outer-lip thin, columella tortuous; operculum horny. *Obs.* It is difficult to distinguish some of the shorter species of Terebra from the longer species of Buccinum, although in general there is a great

disparity between the genera. Subula is the generic name given by some authors to the wide-mouth species. Fig. 427, 428.

TEREBRAT'ULA. (*Terebratus*, bored,) *Fam.* Brachiopoda, Lam. *Order.* Palliobranchiata, Bl. *Descr.* Inequivalve, equilateral, oval or sub-trigonal, ventricose or compressed, attached by a tendon passing through an opening in the dorsal, or upper and larger valve, the umbo of which advances beyond that of the other valve; hinge destitute of a ligament, with two teeth in the dorsal valve, locked into corresponding cavities in the ventral, or lower valve, and with two curious processes originating at the umbo of the lower valve, presenting, in some species, the appearance of fine winding tape, advancing towards the front of the valve. and again receding to the centre, where the ends unite; muscular impression, two, placed near the centre of each valve. *Obs.* The recent species of this genus are few. The fossil species are more numerous, occurring in the secondary and tertiary formations. T. Psittacea, Fig. 202.

TEREDI'NA. (From *Teredo.*) *Fam.* Tubicolæ, Lam. Adesmacea, Bl. *Descr.* Valves equal, inequilateral, with prominent umbones, as it were soldered to the outside of the rounded end of a shelly tube, of which they form a part; aperture of the tube partly divided; a flat accessary valve placed on the umbones. *Obs.* This genus, which is only known in a fossil state, is distinguished from Teredo, by the valves being fixed on to the tube, and the tube being closed at one extremity. Fig. 46, 47. T. personata.

TERE'DO. (*A piercer.*) *Fam.* Tubicolæ, Lam. Adesmacea, Bl. *Descr.* Valves equal, inequilateral; presenting when closed, an orbicular figure, with a large angular opening in front, and a rounded opening at the back; placed at the anterior extremity outside of an irregular, flexuous elongated tube, open at both ends; the anterior end divided into two apertures, opened and closed at the will of the animal, by two opercula. *Obs.* This is the genus of Mollusca, which is so remarkable for boring holes for their long tubes in wood, so as to give it a honey-comb appearance. T. navalis, fig. 48; piece of bored wood, fig. 49.

TES'SELLATED. (*Wrought in chequer-work.*) A term applied to the colouring of shells, when arranged in regular defined patches, like a tessellated pavement.

TESTACEL'LA. (*Testa*, a shell, dim.) *Fam.* Limacinea, Lam. and Bl. *Descr.* Haliotoid, compressed; aperture wide, oblique; columella flat, oblique; spire short, flat, consisting of less than two whorls. *Obs.* This shell which is extremely small, compared to the animal, is placed on its back, near the posterior extremity. The animal is found in some of our gardens, and very much resembles a common slug. Fig. 261, T. Haliotoidea.

TESTA'CEOUS. (*Testa*, a shell.) Shelly. Testaceous mollusca, soft animals, having shells. Testaceous operculum, composed of shelly matter.

TETRA'CERA. Bl. The first family of the order Polybranchiata, Bl. containing no genera of testaceous mollusca.

TEXTULA'RIA. Defr. A genus of microscopic Foraminifera.

THA'LAMUS. Montf. A genus described as resembling Conilites, but curved and granulated.

THECI'DIUM. (*Theca*, a box.) *Fam.* Brachiopoda, Lam. *Order.* Palliobranchiata, Bl. *Descr.* Lower valve concave, sub-trigonal, with the umbo produced into a triangular slightly incurved beak, and with two short pointed processes advancing from beneath the umbones; upper valve flat, rounded square, with a short blunt appendage, formed to fit between the tooth-like process of the other valve; its inner surface ornamented with symmetrically curved ridges.

THECOSO'MATA. Bl. The first family of the order Aporobranchiata, Bl. containing the genera Hyalæa, Cleodora, Cymbulia, Pyrgo.

THE'MEON. Montf. A genus of microscopic Foraminifera.

THEODOX'US. Montf. A division of the genus Nerita. Fig. 324, N. virginea.

THE'TIS. Sow. (*A sea nymph.*) A genus of fossil shells, described as resembling Mactra, but not having the internal ligament, and having several small acuminated cardinal teeth, but no lateral teeth. It would resemble Tellina in some degree, but has not the posterior fold.

THRA'CIA. Leach. Lithophagi, Lam. Pyloridea, Bl. A genus described as intermediary between Anatina and Mya, and in some degree resembling Corbula. T. corbuloidea, fig. 93.

TIA'RA. Sw. A genus composed Mitra corrugata, Regina, sanguisuga, Microzonias, Auct. and other similar species.

TINOPO'RUS. Montf. A genus of microscopic Foraminifera.

TI'RANITES. Montf. A division of the genus Baculites.

TOMO'GERUS. Montf. ANASTOMA, Auct.

TORNATEL'LA. Lam, *Fam.* Plicacea, Lam. *Descr.* Oval, spirally grooved; spire short, rather obtuse, consisting of few whorls; aperture long, narrow, rounded anteriorly; outer-lip simple, inner-lip thin, slightly spread, columella spiral, incrassated, confluent with the outer-lip. The recent species are few. Several fossil species occur in London Clay, inferior Oolite and Calcaire-grossièr. Monoptygma, Lea, resembles this genus, but has a fold on the inner-lip. Fig. 343, T. flammea.

TRA'CHELIPODA. Lam. (τραχηλος, *trachelos*, neck; ποδα, *poda*, foot.) The third order of the class Mollusca, containing the families, Colimacea, Lymnacea, Melaniana, Peristomiana, Neritacea, Janthinea, Macrostomata, Scalariana, Plicacea, Canali-

fera, Alatæ, Purpurifera, Columellaria, Convolutæ. Fig. 264 to 462.

TRANSVERSE. (*Crosswise*,) A shell is said to be transverse when its width is greater than its length.

TRAPE'ZIUM. Meg. CYPRICARDIA, Lam.

TRAPE'ZIFORM or

TRAPE'ZOID. (*τραπεξιον*, *trapezion*, *trapezium*; *ειδος*, form.) Having four unequal and unparallel sides. *Ex.* Cucullæa, Fig. 133.

TRI'BULUS. Klein. RICINULA, Lam.

TRICHO'TROPIS. Brod. and Sow. (*τριχος*, *trichos*, hair; *τροπις*, *tropis*, keel.) *Fam.* Purpurifera, Lam. *Descr.* Turbinated, keeled, thin, umbilicated, aperture longer than the spire, entire; columella obliquely truncated; outer-lip thin, sharp; epidermis horny, produced into long hairs at the angles of the shell; operculum horny, with the nucleus lateral. *Obs.* Although the shells of this genus have something of the shape of Turbo, they are distinguished from that genus at once, by the thinness of the shell. They are also known from Buccinum, by the absence of a canal. Only two or three species are known, these belong to the Northern ocean. T. bicarinata, fig. 429.

TRIDAC'NA. Lam. *Fam.* Tridacnacea, Lam. Camacea, Bl. *Descr.* Equivalve, regular, inequilateral, radiately ribbed, adorned on the ribs with vaulted foliations, waved at the margins, with a large anterior hiatus close to the umbones, for the passage of a large byssus, by which the animal fixes itself on marine substances; hinge, with a partly external ligament; two laminar teeth in one valve, one in the other. *Obs.* The beautiful shells composing this genus are of a delicate white colour, tinged with buff. One species, the T. gigas, attains a remarkable size, measuring from two to three feet across, and weighing five hundred pounds. Tridacna is distinguished from Hippopus, by the large opening in the hinge. T. elongata, fig. 157.

TRIDACNA'CEA. Lam. A family belonging to the first section of the order Conchifera Dimyaria, containing the genera Tridacna and Hippopus. Fig. 156, 157.

TRI'GONA. Schum? Triangular species of Cytheræa, such as C. lævigata, corbicula, ventricosa, bicolor, &c. Fig. 117, *b*.

TRI'GONAL. Triangular, having three sides.

TRIGONA'TA. Lam. A family of the order Conchifera Dimyaria, Lam. containing the genera Trigonia and Castalia.

TRIGO'NIA. Lam. (*τριγωνον*, *trigonon*, triangular.) *Fam.* Trigonata, Lam. Camacea, Bl. *Descr.* Equivalve, inequilateral, transverse, sub-trigonal, costated and granulated without, pearly, iridescent within, denticulated on the inner margin, rounded anteriorly, truncated posteriorly; hinge with four oblong, compressed, diverging teeth in one valve, receiving between their

grooved sides, two similar teeth in the other; ligament external, thick; muscular impressions, two in each valve. *Obs.* Only one recent species of this marine genus is known; the T. pectinata, which comes from New Holland, and was formerly so rare, that a very much worn odd valve has been known to produce a considerable sum. It is of a brilliant pearly texture within, tinged with purple or golden brown. Fossil species abound in Lias, Upper and Lower Oolites, and green sand. T. pectinata, fig. 139.

TRIGONOSE'MUS. König. A genus composed of species of Terebratula, Auct. which have one valve produced into a beak, perforated, or, as it were, truncated at the apex. T. lyra, fig. 208, differing from Terebratula lyra, Lam.

TRIGONOTRE'TA. König. A genus composed of species of Terebratula, Auct. which have the hinge of the larger valve produced into a triangular disc, divided by a triangular foramen in the centre. Spirifer, Sow. belongs to this genus. Fig. 214, 215.

TRILOBATE. (τρια, *tria*, three; λοβος, *lobos*, division, part, lobe.) Divided into three lobes or principal parts. *Ex.* Malleus, Fig. 165.

TRILOCULI'NA. D'Orb. A genus of microscopic Foraminifera.

TRIPHOR'A. Deshayes. A genus composed of small sinistral species of Cerithium, Auct. with the anterior canals closed at the bases and open at the extremities; so as to present the appearance of a threefold aperture. Fig. 375.

TRIP'LODON. Spix. Hyria, Lam.

TRIP'TERA. Quoy et Gaimard. Cuvieria, Fer.?

TRIQUE'TRA. Bl. Triangular species of Venus, Auct.

TRISIS. Oken. Arca Tortuosa, Auct.

TRITON. Auct. *Fam.* Siphonostomata, Bl. Canalifera, Lam. *Descr.* Oblong or oval, thick, ribbed or tuberculated, with discontinuous varices placed at irregular distances; spire prominent, mamillated; aperture round or oval, terminating anteriorly in a generally long, slightly raised canal; columellar lip granulated or denticulated; outer-lip thickened, reflected, generally denticulated within; epidermis rough; operculum horny. Fig. 398 to 401.

TRI'VIA. Gray. A genus composed of the small species of Cypræa, Auct. which are characterized by small ridges on the dorsal surface, and have the anterior of the columella internally concave and ribbed. C. Pediculus, fig, 449, 450.

TROCHI'LÆA. Sw. Pileolus, Auct.

TRO'CHUS. Auct. (*A top.*) *Fam.* Turbinacea, Lam. Goniostomata, Bl. *Descr.* Turbinated, thick, striated, tuberculated or smooth: spire elevated, conical, consisting of numerous whorls; under surface discoid; aperture more or less depressed in an oblique direction, generally angular; columella arcuated, more or less prominent at its union with the outer-lip, contiguous to

the axis of the shell; operculum horny, orbicular, with numerous whorls. *Obs.* Lamarck distinguishes this genus from Turbo, by the general form, which is more conical, and the aperture which is angulated, while that of Turbo is rounded. Monodonta or Odontis, is only separated on account of the notch at the termination of the columella. But these characters glide so imperceptibly from one genus to the other, that there is no line of demarcation to be found, but in the operculum. Accordingly, Mr. Sowerby (in Gen. of Sh. 37) has stated his reasons for considering, as Trochi, all the species which have horny opercula; and as Turbines, all those which have testaceous opercula. Fig. 358 to 360.

TROPÆ'UM. Sow. CRIOCERATITES.

TRO'PHON. Montf. Murex Magellanicus, Auct. and several other species which belong more properly to Fusus than to Murex.

TRUN'CATED. (*Truncus*, cut short.) Terminating abruptly, as it were, cut short. *Ex.* Solen ensis, fig. 60.

TRUNCATULI'NA. D'Orb. A genus of microscopic Foraminifera.

TUBA. Lea. A genus of small fossil shells, described as resembling TURBO, but with the aperture more like that of MELANIA. T. striata, fig. 369.

TU'BERCLE. (*Tuberculus.*) A small swelling excrescence.

TUBER'CULATED. Having a number of small lumps or pimples, as Turrilites, fig. 483.

TUBICINEL'LA. Lam. (*Tubicen*, a trumpeter.) *Order.* Sessile Cirripedes, Lam. *Descr.* A cylindrical tube, composed of six elongated valves jointed together side by side, striated longitudinally, surrounded by concentric rings; aperture circular, enclosed by an operculum of four valves, placed perpendicularly in an epiphragm. *Obs.* The Tubicinellæ are found with nearly the whole shell buried in the thick skin of the whale. T. Balænarum, fig. 14.

TU'BICOLÆ. Lam. (*Tuba*, a tube; *cola*, an inhabitant.) A family of the order Conchifera Dimyaria, Lam. containing the genera Aspergillum, Clavagella, Fistulana, Septaria, Teredina, Teredo, Gastrochæna and Xylophaga. Fig. 44 to 54.

TU'BIVALVES. Bl. Shells composed of two valves connected with a tube.

TURBINA'CEA. Bl. The sixth family of Polythalamacea, Bl. containing the genera Cibicides and Rotalites, microscopic Foraminifera.

TURBINA'CEA. Lam. A family of the first section of the order Trachelipoda, Lam. containing the genera Solarium, Rotella, Trochus, Monodonta, Turbo, Planaxis, Phasianella, Turritella, and others enumerated in explanation of figures 353 to 371.

TUR'BINATED. (*Turbo*, a top.) Top-shaped. The term is applied generally to those shells which are large at one extremity, and narrow to a point at the other. *Ex.* Trochus, fig, 358. Turbinellus, fig. 382.

TURBINEL'LUS. Auct. (*A little top.*) Turbinated, thick, wide near the apex, generally tuberculated; spire short, depressed, mamillated; aperture rather narrow, terminating anteriorly in an open canal; outer-lip thickened within; columella, having from three to five prominent compressed, transverse folds. *Obs.* The Turbinelli are a well marked genus of marine shells, the species of which are numerous. No fossil species are known. The genus Cancellaria makes the nearest approach to Turbininellus, in some characters, but may be distinguished by the roundness of its form, the raised lines inside the outer-lip, and the obliquity of the folds on the columella. Fig. 382 to 384.

TUR'BO. Linn. (*A top.*) *Fam.* Cricostomata, Bl, Turbinacea. Lam. *Descr.* Turbinated, solid, ventricose, generally grooved or tuberculated; spire short, pointed; aperture generally rounded, subeffuse anteriorly, entire; operculum shelly, solid, incrassated on the outer-side, horny and sub-spiral on the inner-side, *Obs.* The only certain means of distinguishing this extensive genus of marine shells from Trochus is the operculum, which in the latter genus is horny, spiral, and composed of a great number of whorls. The Trochi, however, are in general more conical, and flatter at the under side of the whorls, and this constitutes Lamarck's distinction between the genera. T. setosus, fig. 368.

TURRICULA'CEA. Bl. The seventh family of the order Polythalamacea, Bl. containing the genus Turrilites. Fig. 483.

TUR'RILITES. Lam. (*Turris*, a tower; λιθος, *lithos*, a stone.) *Fam.* Turriculacea, Lam. Ammonacea, Bl. *Descr.* Chambered, turrited, spiral; septa sinuous, and lobate, perforated by a siphon; aperture rounded, with the outer-lip expanded. This genus, which is distinguished from the other Ammonacea, by having the spire produced, i. e. not being convolute, consists of several species, occurring only in the chalk marl. Fig. 483.

TUR'RIS. Montf. A genus composed of such species of MITRA, Auct. as have the whorls angulated, with the aperture lengthened and undulated.

TURRITEL'LA. Lam. (*A little tower.*) *Fam.* Turbinacea, Lam. Cricostomata, Bl. *Descr.* Turrited, elongated, generally grooved spirally; spire pointed, consisting of numerous whorls; aperture rounded or angulated; inner and outer-lips thin, confluent anteriorly; operculum horny, *Obs.* The shells composing this well defined genus, are commonly called screws, a name to which the spiral grooves of most of the species seem to entitle them. Fig. 370, T. imbricata.

TYMPANOSTO'MA. Schum. (*Timbrel mouth.*) POTAMIS Brongn.

TY'PHIS. Montf. A genus composed of Murex *tubifer*, Auct. and other similar species, having the canal closed, and a perforated tube between each varix, on the angulated part of the whorls. Fig. 397.

UL'TIMUS. (*The last.*) Montf. A genus composed of Ovulum gibbosum, Auct. fig. 443, and other species in which the canals are not distinctly defined, nor elongated. This fanciful name is given to the genus, on account of its being described in the last page of the book.

UMBILI'CUS. (*A navel.*) The hollow formed in spiral shells when the inner side of the volutions do not join each other; so that the axis is hollow. *Ex. Helix algira*, fig. 279, letter *u.* The term is also used to express any small, neat, rounded hollow.

UM'BO. (*The boss of a buckler or shield.*) The point of a bivalve shell above the hinge, which constitutes the apex, or nucleus of each valve, from which the longitudinal rays diverge, and the lines of growth, commencing at the minutest circle, descend in gradually enlarging concentric layers to the outer margin. The umbones will be marked with the letter *u.* in Cytheræa, fig. 117.

UMBREL'LA. (*A little shade.*) *Fam.* Semiphyllidia, Lam. Patelloidea, Bl. *Descr.* Patelliform, sub-orbicular, compressed, rather irregular; apex slightly raised, placed near the centre; margin acute; internal surface with a central, callous, coloured disc, surrounded by a continuous, irregular muscular impression. *Obs.* This genus is known from Patella, by its continuous muscular impression. It is commonly called the Chinese Umbrella shell. There are several species. U. Indica, fig. 233.

UN'DATED. (*Unda*, a wave.) Waved.

UNGUI'CULATED. (*Unguis*, a nail or hoof.) An unguiculated operculum, is one in which the layers are disposed laterally, and the nucleus constitutes part of the outer edge.

UNGULI'NA. (*Ungula*, a nail or claw.) *Fam.* Mactracea, Lam. Conchacea, Bl. *Descr.* Equivalve, sub-orbicular, sub-equilateral, with margins entire, simple, closed all round; hinge with one short, sub-divided cardinal tooth in each valve, and a very minute additional tooth in one valve, an oblong ligamentary pit divided into two portions, one of which receives the cartilage, the external ligament immediately below the umbones; muscular impressions, two in each valve, oblong; impression of the mantle entire. U. transversa, fig. 88.

U'NICORNUS. Montf. Monoceros, Auct.

U'NIO. (*A pearl.*) *Fam.* Nayades, Lam. Submytilacea, Bl. *Descr.* Equivalve, inequilateral, transverse, free, pearly within, covered with a smooth epidermis without; umbones prominent, generally corroded; muscular impressions two in each valve, lateral, distant, the anterior composed of several small divisions; hinge

hinge varying in age, species, and individuals. *Obs.* The above description is framed to include all the genera of Lamarckian Nayades, with CASTALIA, placed by him in his family Trigonata. They are all fresh-water shells, commonly called fresh water muscles. The distinctions of the various genera into which they have been divided will be found under their respective letters. Fig. 140 to 152, represent the whole. Fig. 145 to 148, are more generally considered as forming the genus Unio.

UPPER VALVE. The free valve in attached bivalves.

U'NIVALVE. (*Unus*, one; *valva*, valve.) A shell consisting of a single piece, as distinguished from bivalves and multivalves, which are composed of two or more principal pieces. Spiral shells having an operculum, are called sub-bivalves by some authors.

UVIGERI'NA. D'Orb. A genus of microscopic Foraminifera.

VAGI'NA. Megerle. SOLEN *vagina*, Auct.

VAGIN'ULA. (*A little sheath, the husk of corn.*) *Class.* Pteropoda, Lam. *Descr.* Pyramidal, slightly inflated in the centre, thin, fragile; aperture oblong, with the edges turned slightly outwards. *Obs.* The little shells of this genus, which are only known in a fossil state, differ from Cuvieria in being pointed at the extremity. Found in the tertiary beds of Bordeaux. V. Daudinii, Fig. 225.

VAGINULI'NA, D'Orb. A genus of microscopic Foraminifera.

VALVA'TA. Mull. *Fam.* Peristomata, Lam. Cricostomata, Bl. *Descr.* thin, turbinated; spire short, composed of three to six rounded whorls; aperture circular; peritreme acute, entire; operculum horny, spiral. *Obs.* This genus of small shells resembles Cyclostoma, from which the recent species may be known by the horny texture of the external surface, being fresh-water shells. The fossils of course belong to the fresh-water formations. V. piscinalis, 322.

VALVES. (*Valva*, a door, or folding piece.) The two pieces composing a bivalve shell, which close upon each other, turning upon a hinge consisting of a ligament, cartilage and teeth. The term univalve is used to denote spiral shells.

VALVULI'NA. D'Orb. A genus of microscopic Foraminifera.

VA'RIX. (*A swelling vein.*) A varix is formed on the outer surface of a spiral shell by the thickened, reflected edge of a former aperture after fresh deposits of testaceous matter have increased the size by adding to the growth of the shell beyond it. In this manner there are frequently many varices or edges of former apertures in various parts of the spire and the body whorl. They are sometimes placed at regular distances from each other, as in Harpa, Fig. 419; sometimes continuous as in Ranella, Fig. 393; sometimes discontinuous as in Triton, Fig. 398.

VELUTINA. Lam. *Fam.* Macrostomata, Lam. *Descr.* Sub-globose, covered with a velvet epidermis; spire short, composed of two rapidly enlarged, ventricose whorls; aperture large, sub-ovate; peritreme thin, entire, separated from the last whorl; columella tortuous, thin. *Obs.* This shell does not resemble any other genus in the family, Fig. 337.

VELATES. Montf. NERITINA *perversa*, Lam. Fig. 326.

VENERICARDIA. Lam. A genus composed of the more oblong species of CARDITA.

VENERIRUPIS. (from *Venus and rupis*, rock.) The oblong species of VENUS, Auct. which live in cavities of rocks and stones, This genus is united by Sowerby with some other species of Venus, under the name Pullastra. V. Vulgaris, fig. 97.

VENTRAL. (*Venter*, the belly.) The margin of a bivalve shell opposite the hinge. The under valve in Brachiopoda.

VENUS. (*Goddess of the Sea and of Beauty.*) *Fam.* Marine Conchacea, Lam. Conchacea, Bl. *Descr.* Equivalve, inequilateral, sub-globose, sub-ovate, transverse, externally rugose, striated, ribbed, cancellated or smooth, margins entire, simple, close, hinge with three, more or less distinct cardinal teeth, diverging from the umbones in each valve; muscular impressions two, lateral, distant; paleal impression sinuated posteriorly; ligament external. *Obs.* This extensive genus, including some bivalves of a splendour and beauty justifying the name given to it, may be known from Cytheræa by the absence of a lateral tooth, which is found near the cardinal teeth in the latter. Artemis is distinguished not only by its lenticular form, but by the deep angular sinus in the palleal impression. Fig. 119, 119, *a*.

VERMETUS. Adanson. *Fam.* Scalariana, Lam. Cricostomata, Bl. *Descr.* Spiral at the apex, irregularly twisted towards the aperture; aperture round, small. *Obs.* This shell resembles the Serpula in general appearance, although regularly spiral towards the apex. The animal, however, is known to be a true mollusc, rather nearly allied to Dentalium, which is not rightly placed in the Lamarckian system. Fig. 345.

VERMICULARIA. Lam. VERMETUS, Adanson, afterwards VERMETUS, Lam.

VERMILIA. Lam. A genus composed of species of Serpulæ, which are attached by the whole length of the shell, no part being free. V. triquetra, fig. 345.

VERTEBRALINA. D'Orb. A genus of microscopic Foraminifera.

VERTEX. APEX.

VERTIGO. Mull. *Fam.* Colimacea, Lam. Cylindrically fusiform, sinistral hyaline; aperture marginated, sinuated, denticulated on the inner edge; peristome sub-reflected. *Obs.* This genus of minute land shells, resembles Pupa, but is a sinistral, hyaline shell. V. pusilla, 293.

VERRUCA. Schum. Clitia, Leach.

VIRGULINA. D'Orb. A genus of microscopic Foraminifera.

VITRINA. Drap. (*Vitreus*, glassy.) *Fam.* Limacinea, Lam. and Bl. *Descr.* Ovate, thin, glassy, fragile; spire short; last whorl large; aperture wide, transverse; peritrême simple; columella spiral, linear. *Obs.* This genus of land shells is not known in a fossil state. The recent species are found among moss and grass in shady situations. De Ferussac has divided this genus into Helicolimax, fig. 263, and Helixarion, fig. 262.

VIVIPARA. A generic name given by some authors to Paludina, Lam. on account of the animals being *viviparous*, i. e. the young being perfectly formed before they leave the ovaries.

VOLVARIA. Lam. (*Volva*, a shuttle.) *Fam.* Columellaria, Lam. *Descr.* Cylindrical, convolute, spirally striated; spire very short, nearly hidden; aperture narrow, as long as the whole shell; columella, with three oblique plaits; outer-lip dentated. *Obs.* The Volvariæ, are only known in a fossil state, and resemble some species of Bulla in general form, but are distinguished by the plaits of the columella. Fig. 439, V. concinna.

VOLUTA. Linn. (*Volvo*, to revolve.) *Fam.* Columellaria, Lam. Angyostomata, Bl. *Descr.* Sub-ovate, rather angulated, thick, generally tuberculated, smooth; spire short, conical, with a mammillated apex; aperture generally angulated, large, terminating anteriorly in a deep notch; columella smooth, with several plaits, of which the lowest is the largest; outer-lip thickened within, *Obs.* This genus includes a great number of beautiful shells, most of which are rich in colouring. Cymba and Melo have been separated by Mr. Broderip, from the genus Voluta, of Lamarck, for reasons stated in their respective descriptions. Fig. 443.

VOLUTELLA. Sw. (*A little volute.*) A genus composed of those species of Marginella, Auct. which have the spire concealed, and the aperture smooth within. Fig. 438, Persicula of Schumacher.

VOLUTION. v. Whorl.

VOLUTILITHES. Sw. (*Voluta*, and λιθες, *lithes*, a stone.) A genus composed of some fossil species of Voluta, which have the plaits on the pillar generally numerous, indistinct, and sometimes wanting altogether, with a pointed spire. Fig. 436, V. spinosa.

VORTICIALIS. Lam. A genus of microscopic Foraminifera.

VULSELLA. Lam. (*A little tongue.*) *Fam.* Ostracea, Lam. Margaritacea, Bl. *Descr.* Equivalve, irregular, longitudinal, compressed, oblong; umbones separated by a slight area in both valves; hinge with a large pit in the centre, containing the cartilage, the ligament being spread over the areas; muscular impressions, one in each valve, sub-central, oblong. *Obs.* This genus differs from Ostræa, in the equality of the valves, and in

having a hollow pit in the hinge for the cartilage. Fig. 185, V. lingulata.

WHORL. A complete turn or revolution round the imaginary axis of a spiral shell.

XYLOPHAGA. Sow. (ξυλον, *xulon*, wood; φαγω, *phago*, to eat.) *Fam.* Tubicolæ, Lam. *Descr.* Equivalve, globose, closed at the back, with a large, angular hiatus in front; hinge with a small curved tooth, advancing from beneath the umbones in each valve. *Obs.* This shell, which is found in a cylindrical cavity, eaten in wood by the animal, resembles Teredo, but has not the shelly tube, nor the posterior hiatus. X. dorsalis, fig. 50, 51.

XYLOTRYA. Leach. Xylophaga, Sow.

ZONITES. Montf. A genus formed of Helix Algira, and other similar species with depressed spires and large umbilici; included in the sub-genus Helicella. Fig. 279.

THE END.

EXPLANATION OF PLATES,

AND SYSTEMATIC VIEW OF THE

LAMARCKIAN ARRANGEMENT.

Class, ANNELIDES.

Order, SEDENTARIA.

Fam. Maldania.

FIG.
1 Siliquaria anguina. Agathirses, Montf.

Fam. Dorsalia.

2 Dentalium octogonum.
3 Pharetrium fragile, with the outer tube broken.

Fam. Serpulacea.

4 Serpula bicarinata.
5 Spirorbis nautiloides, on sea-weed.
6 Galeolaria decumbens, on a Conia.
7 Vermilia triquetra.
8 Spiroglyphus, on a portion of Patella.
8 Magilus antiquus, old shell (from Guerin.)
10 The same, in a young state.
11 Leptoconchus striatus.
12 Stylifer astericola.
13 The same, in a portion of Star-fish.

Class, CIRRIPEDES.

Order, Sessile Cirripedes.

FIG.

14 Tubicinella Balænarum.
15 Corunula Testudinaria. Chelonobia. Leach, Astrolepas, Klein.
16 ——— Balænaris. Cetopirus, Ranz.
17 ——— diadema, Diadema, Ranz.
18 Chthalamus, Ranz. (from Blainv.)
19 Platylepas pulchra, Leach. One valve separate, shewing the inside.
20 Clitia Verruca, Leach.
21 Conia porosa.
22 Elmineus Leachii.
23 Catophragmus imbricatus (from Sowerby's Genera.)
24 Octomeris angulosus (from Sowerby's Genera.)
25 Balanus tintinnabulum,
26 ——— Montagui, Acasta, Lam.
27 ——— galeatus, Conoplæa, Leach.
28 Creusia gregaria, b. shewing the internal structure.
29 Nobia grandis.
30 Savignium crenatum.
31 Pyrgoma cancellata. } Pyrgoma, Auct.
32 Adna Anglicum,
33 Megatrema semicostata.

Order, Pedunculated Cirripedes.

34 Pentelasmis lævis; anatifera, Lam. Anterior, *a*.
35 Scalpellum vulgare.
36 Smilium Peronii.
37 Pollicipes polymerus.
37*Pollicipes mitellus, Capitulum, Gray?
38 Bisnæus Rhophodius.
39 Lithotrya dorsalis.
40 Ibla Cuveriana.
41 Octolasmis Warwickii, Gray. Heptalasmis, Leach.
42 Cineras vittatus.
43 Otion Cuvieri.

Class, CONCHIFERA.

Order, C. Dimyaria.

Fam. Tubicolaria.

44 Aspergillum vaginiferum.
45 Clavagella, a fossil species.
46 Teridina personata.

FIG.
47 Lignite, pierced by Teredinæ.
48 Teredo navalis; *a*, tube (from Sowerby's Genera.)
49 Wood bored by Teredo.
50 Xylophaga dorsalis.
51 The same, in wood.
52 Gastrochæna Modiolina, in the tube (from Sowerby's Genera.)
53 Fistulana Clava,
54 Tube of the same, } (from Sowerby's Genera.)

Fam. Pholadaria.

55 Pholas Dactylus, a, plates of the hinge.
56 —— papyracea; Pholidæa.
57 Pholadomya candida.
58 Galeomma Turtoni.
59 Front view of the same.

Fam. Solenacea.

60 Solen ensis. Ensis, Schum.
61 Solenocurtus radiatus, Bl. Solen, Lam. Leguminaria, Schum.
62 Lepton squamosum, from Turton.
63 Novaculina gangetica.
64 Glanconome Chinensis.
65 Panopæa Australis.
66 Hinge of Panopæa Faujasii. } (from Sowerby's Genera.)
67 Glycimeris Siliqua.
68 Solenimya Mediterranea.

Fam. Myaria.

69 Anatina rostrata.
70 Anatinella Sibbaldii.
71 Mya truncata.
72 Periploma inequivalvis, Osteodesma, Schum; a. bone of the hinge (from Blainv.)
73 Myochama anomioides; lower valve with clavicle, and hinge of upper valve.
74 External view of the same, attached to a Trigonia.
75 Cleidothærus Chamoides, attached valve.
76 Upper valve of the same, with the clavicle.

Fam. Mactradæ.

77 Lutraria papyracea. Ligula, Leach, Carinella, Adans.
78 ——— Solenoides. Cultellus.——?
79 Mactra Stultorum.
80 ——— plicataria; Spisula? Gray.

FIG.
81 Mactra Spengleri. Schizosdesma, Gray,
82 Mactra bicolor; Mulinia, Gray.
83 Gnathodon cuneatus, Gray.
84 Crassatella rostrata.
85 Amphidesma reticulatum.
86 Erycina plebeja.
87 Cumingia mutica.
88 Ungulina transversa, (from Sowerby's Genera.)

Fam. Corbulacea.

89 Corbula nucleus.
90 Pandora rostrata.

Fam. Lithophagidæ.

91 Petricola Roccellaria.
92 ——— Carditoidea; Coralliophaga, Bl.
93 Thracia corbuloides.
94 Saxicava rugosa.
95 Hiatella biaperta.
96 Sphænia Binghamii.
97 Venerirupis vulgaris.

Fam. Nymphacea.

98 Sanguinolaria rosea; Lobaria, Schum.
99 ——— Diphos; Soletellina, Bl.
100 Psammobia Ferroensis.
101 Corbis fimbriata.
102 Grateloupia Moulinsii, (from Lea.)
103 Egeria triangulata, (from Lea.)
104 Lucina tigerina.
105 Tellina radiata.
106 ——— lingua-felis. *a*, showing the fold in the ventral margin,
107 Tellinides rosea,
108 Donax cuneatus.
109 Capsa Brasiliensis, young.
110 Astarte Danmoniensis; Crassina, Lam.

Fluviatile Conchacea.

111 Cyclas rivicola; Cornea, Megerle.
112 Pisidium amnicum. Pisum, Megerle,
113 Cyrena fuscata.
114 Cyrenoides Dupontia.
115 Potamophila radiata. Galathæa, Lam. *v*, ventral margin.

Marine Conchacea.

116 Cyprina vulgaris.

FIG.
117 Cytherea Meretrix. *e*, escutcheon.
117 a. C. Meroe; Gen. Meroe.
117 b. C. Tripla; Gen. Trigona.
117 c. C. Maculata. Gen. Chine.
117 d. C. Castrensis. Gen. Circe.
118 Artemis lincta. *s*, sinus in the Paleal impression.
119 Venus cancellata. *a*, anterior; *p*, posterior; *c*, cardinal teeth.
119 a. V. Verrucosa, Dosina.
120 Pullastra Textile.
121 Venericardia, recent species, resembling V. Planicostata, Lam.

Fam. Cardiacea.

122 Cardium Dionæum, Hemicardium, Nonnul; Cardissa, Sw.
123 Cardium maculosum.
123* ——— Groenlandicum. Aphrodita, Lea.
123** ——— hemicardium. *Gen.* Hemicardium.
124 Cardita Calyculata.
125 Cypricardia angulata.
126 Isocardia Moltkiana.
127 Megalodon cucullatus, (from Sowerby, Min. Con.)
128 Hippagus Isocardioides, (from Lea.)
129 Hippopodium ponderosum. (from Sowerby, Min. Con.)
130 Pachymya gigas, (from Sowerby, Min. Con.)

Fam. Arcacea.

131 Arca antiquata.
132 Bysso-arca Noæ.
133 Cucullæa auriculifera, (from Sowerby's Genera.)
134 Pectunculus pilosus.
135 Myoparo costatus, (from Lea.)
136 Crenella, Brown.
137 Nucula margaritacea, three views.
138 Solenella Norrissii.

Fam. Trigonacea.

139 Trigonia pectinata.
140 Castalia ambigua, Tetraplodon pectinatus, Spix.

Fam. Nayades.

141 Alasmodon complanatus, Say. Margaritana, Schum.
142 Dipsas plicatus, Leach. Cristaria, Schum.
143 Hyria corrugata, Lam. Paxyodon, Schum. Triplodon, Spix.

FIG.
144 Hyria Syrmatophora, Sow. Prisodon, Schum. Diplodon, Spix.
145 Unio littoralis, Lam. Mysca ovata, Turt.
147 Unio Alatus; Symphynota, Lea.
148 —— Atratus, Lam. Naia, Sw.
149 Monocondylæa Paraguayana.
150 Iridina elongata; Pleiodon, Conrad . . . . } Platiris Lea.
151 Mycetopus solenoides, D'Orb. Spatha, Lea. }
152 Anodon Cataractus.

Fam. Cha macea

153 Chama Lazarus.
154 Diceras perversum, (from Sowerby's Genera.)
155 Etheria semilunata.

Order, MONOMYARIA.

Fam. Tridacnacea.

156 Hippopus maculatus.
157 Tridacna elongata.

Fam. Mytilacea.

158 Mytilus achatinus.
159 ——— polymorphus; Gen. Dreissina.
160 Modiola Tulipa.
161 Lithodomus Dactylus.
162 Pinna saccata.

Fam. Malleacea.

163 Avicula Hirundo.
164 ——— margaritifera, Meleagrina, Lam.
165 Malleus Vulgaris.
166 Perna ephippium.
167 Catillus Lamarkii; Inoceramus, Sow, (from Blainv.)
168 Crenatula mytiloides, }
169 Gervillia aviculoides, } (from Sowerby's Genera.)
170 Pulvinites Adansonii, }

Fam. Pectinides.

171 Pecten varius.
172 ——— Plica; Decatopecten, Rüppel.
173 Hinnites pusio. Pecten pusio, Lam.
174 Lima squamosa.
175 Dianchora striata, (from Sow. Min. Con.)
176 Plagiostoma spinosum, (from Sow. Min. Con.)
177 Spondylus Americanus, hinge, (See Frontispiece.)
178 Plicatula gibbosa.

Fam. Ostracea.

FIG.
179 Pedum Spondyloideum, (from Sow. Gen.)
180 Ostræa edulis.
181 ——— Folium. Dendostræa, Sw.
182 Gryphæa incurva.
183 Exogyra conica, (from Sow. Min. Con.)
184 Placuna placenta.
185 Vulsella lingulata.
186 Anomia ephippium.
187 Hinge of the same, with bony process.
188 Hinge, shewing the fissure.
189 Placunanomia Cumingii.
190 Hinge, shewing the fissure.
191 Hinge of the unattached valve.
192 Mulleria, (from Sow. Gen.)

Fam. Rudistes.

193 Sphærulites foliacea. (Radiolites is more conical.)
194 Calceola Sandalina.
196 Birostrites inæquiloba, internal cast of Sphærulites.
197 *a.* Crania personata, dorsal valve; *b.* C. antiqua, interior. (This would be more properly placed in Brachiopoda.)
198 Hippurites Cornucopia, (from Blainv.)
199 Hipponyx Cornucopia, attached valve.
200 Upper valve of the same.

Fam. Brachiopoda.

201 Orbicula lævis.
202 Terebratula Psittacea. *a*, anterior margin.
203 Atrypa reticularis. Trigonotreta, König.
204 Cyrtia exporrecta.
205 Delthyris plycotes, (from Dalman.)
206 Leptæna depressa, Dalman; Productus, Sow, (from Sow. Gen.)
206*Productus antiquatus.
207 Orthis basalis, Dalman; Strophomena, Raf.
208 Trigonosemus Lyra, König.
209 Magas pumilus, Sow.
210 Gypidia conchidium, (from Dalman.)
211 Interior of large valve, of the same, (from Dalman.)
212 Pentamerus Aylesfordii, (from Sow. Min. Con.)
213 ——— lævis.
214 Spirifer trigonalis. } Trigonotreta, König, (from
215 ——— dorsatus. } Sow. Gen.)
216 Thecidium recurvirostrum.
(Crania should come in here, See Rudistes.)
217 Pycnodonta radiata, (from Fischer.)

FIG.
218 Hinge of the same.
219 Lingula Anatina.

Class, MOLLUSCA.

Order, PTEROPODA.

220 Atlanta helicialis.
221 Cleodora cuspidata.
222 Creseis spinifera.
223 Cuvieria columella.
224 Spiratella limacinea, with animal; Limacella, Lam. (from Blainv.)
225 Vaginula Daudinii.
226 Hyalæa tridentata, Archonte, Montf.

Order, GASTEROPODA.

Fam. Phyllidiana.

227 Chiton spinosus.
228 Chitonellus striatus, (from Sow. Gen.)
229 Patella Oculus. *a*, anterior.
230 ——— pellucida, Helcion, Montf. Ansates, Klein.
231 Lottia Antillarum; Patelloides, Quoy et Gaimard.
231* Siphonaria Sipho.

Fam. Semiphyllidiana.

232 Pleurobranchus membranaceus.
233 Umbrella indica.

Fam. Calyptracea.

234 Calyptræa Equestris.
235 ——— extinctorium.
236 ——— auriculata.
237 Infundibulum Pileus. Montf.
238 Side view of the same.
239 Crepidula Porcellana.
240 Capulus ungaricus, two views, Pileopsis, Lam.
241 Emarginula fissura.
242 Parmophorus elongatus.
243 Rimula Blainvillii.
244 Cemoria Flemingii.
245 Fissurella oriens.
246 Ancylus fluviatilis.

Fam.—Bulleana.

247 Bulla fragilis. Akera, Nonnul.
248 —— aperta. Bullæa, Lam.
249 —— aplustre. Aplustra, Schum.
250 —— Naucum. Atys, Montf.

FIG.

251 Bulla lignaria. Scaphander.
252 —— Ampulla.
253 Bullinula lineata? Beck.

Fam.—Aplysiacea.

254 Aplysia Petersoni.
255 Dolabella Rumphii.

Fam.—Limacinea.

256 Cryptella, Webb. Parmacella calyculata, Sow.
257 Parmacella Olivieri, (from De Ferussac.)
258 ———— palliolum, Do.
259 Limax antiquorum.
260 Plectrophorus corninus, (from De Ferrussac.)
261 Testacellus haliotoideus.
262 Helixarion, Cuv. } Vitrina, Drap.
263 Helicolimax pellucida }

Order.—Trachelipoda.

Fam.—Colimacea.

Sub-genera. De Fer.

264 Helix brevipes. Drap..... Helicophanta.
265 Succinea amphibia } Cochlohydra.
266 ———— patula, Amphibulina, Lam. }
267 Helix hæmastoma, Acavus, Montf. }
268 —— Pomatia, } .....Helicogena.
269 Streptaxis contusa, Gray, }
270 Another view of the same, }
271 Anostoma depressum, }
272 Another view of the same, }
273 Helix nux-denticulata, } ..... Helicodonta.
274 Proserpina nitida, }
275 Polygyra septemvolvus, }
276 Another view of the same, }
277 Carrocolla Lamarkii. } ..... Helieigona.
278 Helix pileus, Geotrochus, }
279 Helix algira. Zonites, Montf. } .... Helicella.
280 Helix citrina. Naninia, Gray. }
281 Helix epistylium..... Helicostyla
282 Bulinus rosaceus, mark apex, *a.* }
283 ——— guadaloupensis; Bulimulus, Leach. } Cochlostyla.
284 —— Lyonetianus; Gibbus, Montf. }
285 —— lubricus; Cionella, Jeffreys, }
286 Achatina virginea. Liguus, Montf. } ..Cochlitoma.
287 Achatinella, Swainson, }

Sub-genera. De Fer.

FIG.

288 Polyphemus Glans, Montf. ..... Cochlicopa.
289 Bulinus decollatus; a, in a young state, Cochlicella.
290 Azeca tridens, Jeffreys, Turbo tridens, Gmelin, } Cochlogena.
291 Pupa Uva,
292 Alæa marginata, Jeffreys,
293 Vertigo pusilla. } ..... Cochlodonta.
294 Megaspira Ruschenbergiana,
295 Clausilia Macascarensis; a, broken to show the clausium,
296 Balea fragilis, ... } ..... Cochlodina.
297 Auricula Judæ.
298 ——— coniformis. Conovulus, Lam. Melampus, Montf.
299 Pedipes Adansoni.
299* Scarabæus imbrium.
300 Chilina Dombeyana.
301 Carychium minimum.
302 Partula Australis.
303 Cyclostoma ferrugineum.
304 ——— Involvulus. Cyclophorus, Montf.
305 Nematura Deltæ. Sow.
306 Helicina major.
307 Operculum of the same.

Fam. Lymneana.

308 Limnæa Stagnalis.
309 ——— auricularia; Radix, Montf.
310 ——— castanea. Physa, Lam.
311 Planorbis corneus.
312 Planaria nitens. (from Lea.)

Fam. Melaniana.

313 Melania subulata.
314 Anculosa, prærosa et monodontoides. Say.
315 Melanopsis costata.
316 Pirena terebralis.
317 Pasithæa striata, (from Lea.)

Fam. Peristomata.

318 Ampullaria fasciata. *a*, aperture.
319 ——— Guinaica. Lanites, Montf.
320 ——— Cornu-arietis.
321 Paludina Bengalensis.

Fam. Neritacea.

FIG.
322 Valvata piscinalis.
323 Navicella elliptica.
324 Neritina virginea; Theodoxus, Montf.
325 ——— spinosa; Clithon, Montf.
326 ——— perversa; Velates, Montf. (from Sow. Gen.)
327 Natica mamilla; Polinices, Montf.
328 ——— lineata.
330 Nerita peloronta; Gen. Peloronta.
331 Neritopsis granosa.
332 Pileolus plicatus.
333 Janthina fragilis.

Fam. Macrostomata.

334 Sigaretus concavus.
335 Stomatia Phymotis.
336 Stomatella imbricata.
337 Velutina lævigata; Galericula, nonnul.
338 Haliotis rubra, young.
339 ——— tricostalis, Lam. Padollus.
340 Scissurella elatior, magnified,
341 Pleurotomaria reticulata, } (from Sow. Gen.)

Fam. Plicacea.

342 Pyramidella Terebellum.
343 Tornatella flammea.
344 Monoptygma elegans, (from Lea.)

Fam. Scalariana.

345 Vermetus lumbricalis.
346 Rissoa reticulata.
347 Eulima labiosa.
348 ——— marmorata.
349 Cirrus nodosus, Sow.
350 Euomphalus pentangulus, (from Sow. Min. Con.)
351 Scalaria Pallassii.
352 Delphinula laciniata.

Fam. Turbinacea.

353 Solarium perspectivum.
354 ——— bifrons, *Gen.* Bifrontia, Omalaxis, Deshayes.
355 Orbis Rotella, (from Lea.)
356 Another view of the same.
357 Rotella vestiaria.
358 Trochus stellaris, Lam. Calcar, Montf. Turbo, Sow.
359 ——— maculatus. Tectus, Montf.

FIG.
360 Trochus agglutinans. Phorus, Montf.
361 ——— Pharaonis. Clanculus, Montf.
362 Margarita tæniata.
363 Littorina vulgaris.
363* Assiminea Grayana.
364 Lacuna pallidula.
365 Planaxis sulcata.
366 Odontis labeo; Monodonta, Lam.
367 Phasianella variegata.
368 Turbo setosus.
369 Tuba striata, (from Lea.)
370 Turritella imbricata.
371 Monotigma, Gray.

Fam. Canalifera.

372 Cerithium Aluco, front.
374 Nerinea Goodhalli, (from Geol. Trans.)
375 Triphoris plicatus, (from Deshayes.)
376 End view of the same.
377 Potamis muricata.
378 Cerithium Telescopium. *Gen.* Telescopium.
379 Pleurotoma Babylonia. *a, a.* extremities of the axis.
381 Pleurotoma strombiformis; *Gen.* Clavatula.
382 Turbinellus corniger. *Gen.* Scolymus, Sw.
383 ——— polygonus. *Gen.* Polygonum.
384 ——— Spirillus. *Gen.* Pyrella.
385 Cancellaria reticulata.
386 Fasciolaria Trapezium.
387 Fusus Colus. *a*, anterior of the aperture; *p*, posterior.
388 Pyrula perversa. Fulgur, Montf.
389 ——— papyracea, Rapanus, Montf.
390 ——— ficus. Ficula, Sw.
391 Struthiolaria straminea.
393 Ranella ranina. *Gen.* Apollon, Montf.
394 ——— neglecta.
395 Murex inflatus. *Gen.* Chicoreus, Montf.
396 ——— haustellum. *Gen.* Brontes, Montf.
397 ——— tubifer. *Gen.* Typhis, Montf. (from Deshayes.)
398 Triton pilearis.
399 ——— cutaceus. Aguillus, Montf.
400 ——— lotorium. *Gen.* Lotorium, Montf.
401 ——— anus. *Gen.* Persona, Montf.

Fam. Alatæ.

402 Rostellaria curvirostrum.
403 Rostellaria columbaria. *Gen.* Hippochrenes, Montf. (from Sow. Gen.)

FIG.
404 Aporrhais pes-pelecani.
405 Pteroceras aurantiacum.
406 Strombus pugilis.

Fam. Purpurifera.

407 Cassidaria echinophora.
408 Side view of the outer-lip, to show the canal.
409 Oniscia Oniscus. Cassidaria, Lam.
410 Cassis tuberosa, reduced.
411 —— erinaceus. Cassidea, Sw.
412 —— testiculus; Cyprædassis, Stutchbury.
413 Ricinula horrida; Sistrum, Montf.
414 Purpura persica.
415 Pollia articularis.
416 Phos senticosa.
417 Monoceros crassilabrum.
418 Concholepas Peruviana.
419 Harpa ventricosa.
420 Dolium maculatum.
421 Buccinum undatum. *a*, anterior of the aperture; *p*, posterior.
422 Buccinum papillosum. Alectrion, Montf.
423 Nassa arcularia.
424 —— neritoidea. *Gen.* Cyclops, Montf.
425 Cyllene, Gray.
426 Eburna Zeylanica.
427 Terebra Buccinoides.
428 Subula maculata.
429 Trichotropis bicarinata.

Fam. Columellata.

430 Columbella mercatoria.
431 Mitra plicaria. *c*, termination of the columella.
432 Conohelix marmorata.
433 Voluta Vespertilio. Cymbiola, Sw.
434 Cymba porcina.
435 Melo Æthiopicus.
436 Volutilites spinosus.
437 Marginella glabella.
438 ———— persicula. *Gen.* Volutella, Sw. Persicula, Schum.
439 Volvaria concinna.

Fam. Convolutæ.

440 Ovulum Ovum.
441 ——— verrucosum. *Gen.* Calpurnus, Montf.
442 ——— Volva, *Gen.* Radius, Montf.

FIG.
443 Ovulum gibbosum. Ultimus, Montf.
444 Cypræovulum capensis.
445 Cypræa Arabica, back.
446 The same, front.
447 Cypræa algoensis, front. Luponia, Gray.
449 Cypræa Pediculus, back. Trivia, Gray.
450 The same, front.
451 Terebellum convolutum. Seraphs, Montf.
452 ——— subulatum, front.
454 Erato Maugeriæ.
455 Ancillaria glabrata.
456 ——— cinnamomea.
457 Oliva Maura.
458 —— subulata. Hiatula, Sw.
459 Conus nocturnus. Rhombus, Montf.
460 —— Nussatella. Hermes, Montf.
461 —— Textile. Cylinder, Montf.
462 —— geographus. Rollus, Montf.

Order. CEPHALOPODA.

First Division. Polythalamia.

Fam. Orthocerata.

463 Amplexus coralloides (from Sow. Min. Con.)
464 Orthoceratites annulatus.
465 Nodosaria æqualis.
466 Belemnites, with the outer-coat broken, to show the alveole.
467 ——— portion of the alveole separated.
468 ——— hastatus. Hibolithes, Montf. (from Blainv.)
469 Conularia quadrisulcata.
470 Conilites pyramidatus (from Blainv.)

Fam. Lituacea.

471 Spirula Peronii.

Fam. Nautilacea.

472 Nummulites lenticularis, outside.
473 The same, inside, to show the chambers.
474 Nautilus pompilius, young. See frontispiece.
475 Simplegas sulcata.
476 Endosiphonites, (from Camb. Philos. Trans.)

Fam. Ammonacea.

FIG.
477 Ammonoceras, (from Blainv.)
478 Ammonites. *a*, break in the shell, shewing the sinuous septa.
479 Orbulites crassus. Globulites. Nonnull, reduced.
479* ——— discus. Aganides, Montf.
480 Goniatites striatus.
481 Scaphites æqualis.
482 Crioceratites Duvallii.
483 Turrilites tuberculatus.
484 Baculites Faujasii. Portion near the centre.
484* Hamites cylindricus. *a*, internal cast of part of the shell; *b*, hollow external cast of the remainder.

Division. Monothalamous Cephalopoda.

485 Argonauta Argo.
486 Bellerophon tenuifasciata, (from Sow. Gen.)
487 The same, showing the dorsal keel.

Order. Heteropoda.

488 Carinaria Mediterranea.

The actual number of figures is five hundred and thirty.

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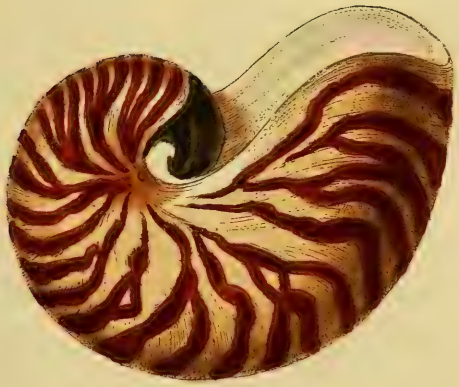

1. Spondylus Americanus. young

2. Nautilus pompilius. young

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Tab. 34 to 56.

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Fig: 60 to 78.

Fig. 79 to 100.

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Fig. 117 to 126 and 128.

Fig. 127 and 129 to 141.

Fig. 142 to 152

Fig. 153 to 166. 165 next plate

Fig. 165. 167. to 182

Fig. 193 to 213. 195 cancellad.

Fig. 214 à 242.

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Tab. 213 to 278.

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Fig. 318 to 348.

Fig 349 to 381. 371 378 on the next.

Fig. 377 378 382 & 391 383 en the mar

Fig 383 398 to 406. 409

Fig. 407 to 425 409 on the last

Fig. 420 to 443.

Fig: 441 to 462.

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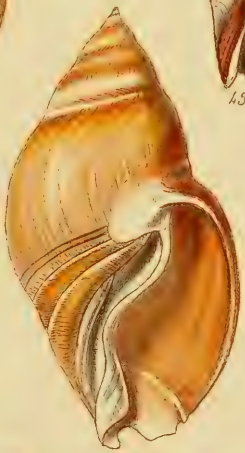
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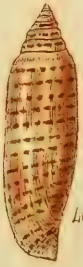
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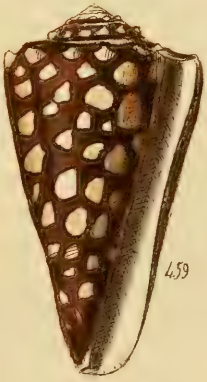
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Fig 463 à 479

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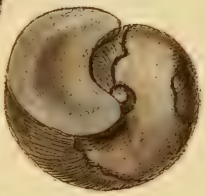
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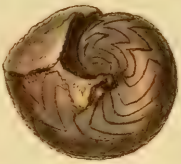
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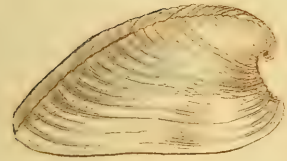
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